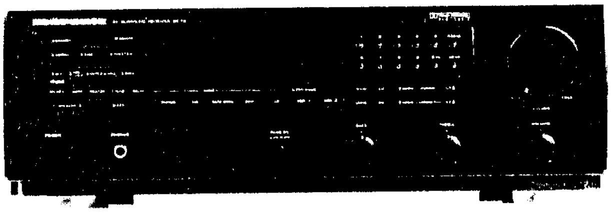
Service Manual

74SR73 / 02B/02G

Audio/Video surround stereo receiver



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MC-Service

marantz®

model SR-73

First issue : 1993

A.O

4822 725 51045

PCS 71 638

MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, MARANTZ company has created the ultimate in stereo sound. Only **original MARANTZ parts** can insure that your MARANTZ product will continue to perform to the specifications for which it is famous.

Parts for your MARANTZ equipment are generally available at our National Marantz Subsidiary or Agent.

MARANTZ EUROPE B.V.
P.O. Box 80002
Building SFF 2
5600 JB Eindhoven
The Netherlands
Phone : +31-40-732241
Fax : +31-40-735578

ORDERING PARTS

Parts can be ordered either by mail or by telex. In both cases, the correct part number has to be specified. The following information must be supplied to eliminate delays in processing your order:

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which the part is required
5. Way of shipment
6. Signature: any order form or telex must be signed, otherwise such part order will be considered as null and void.

ADDRESSES

AUSTRALIA
MARANTZ AUSTRALIA
Figtree Drive
Australia Centre
Homebush, NSW 2140
AUSTRALIA

AUSTRIA
MARANTZ
Hietzinger Kai 137a
1130 Wien
Austria

BELGIUM
MARANTZ EUROPE B.V.
Div. Benelux
P.O.Box 80002
Building SFF 2
5600 JB Eindhoven
The Netherlands

CHILE
MARANTZ DIVISION OF
PHILIPS S.A.
Av.Santa Maria 0760
Casilla 2687
Santiago
Chile

DENMARK
MARANTZ
Horsvinget 5
2630 Tastrup
Denmark

FINLAND
MARANTZ
Kuortanegatan 1
00520
Helsingfors 52
Finland

FRANCE
MARANTZ FRANCE
4 Rue Bernard Palissy
92600 Asnières
France

GERMANY
MARANTZ GERMANY GmbH
Kleine Heide 12
Postfach 4802
Halle-Westfalen
Germany

GREAT BRITAIN
MARANTZ HiFi UK Ltd.
Kingsbridge House
Padbury Oaks
575-583 Bath Road
Longford Middlesex UB7 OEH,
U.K.

GREECE
ADAMCO ELECTR. SA
P.O.Box 21025
Hippocratus Str. 188
Athens 11471
Greece

ITALY
MARANTZ ITALIANA SPA
Piazza IV Novembre 3
20124 Milano
Italy

JAPAN
MARANTZ JAPAN INC.
35-1, 7-chome, Sagamiono
Sagamihara-shi, Kanagawa
Japan

KUWAIT
AL ALAMIAH ELECTRONICS
P.O.Box 8196
Salmiah
22052 Kuwait

NETHERLANDS
MARANTZ EUROPE B.V.
Div. Benelux
P.O.Box 80002
Building SFF 2
5600 JB Eindhoven
The Netherlands

NORWAY
MARANTZ
Postboks 7034
Assiden
3007 Drammen
Norway

PORTUGAL
COREL
Av. da Liberdade
211-2 Esq.
1200 Lisboa
Portugal

SAUDI ARABIA
AL ALAMIAH ELECTRONICS
P.O.Box 5954
University Street
Riyadh 11432
Saudi Arabia

SOUTH AFRICA
MARANTZ S.A.
10 Bond Street
Randburg 2194
P.O. Box 7703
Johannesburg 2000
South Africa

SPAIN
MARANTZ SPAIN
Martinez Villergas 2
Apartado 2065
Madrid 28027
Spain

SWEDEN
MARANTZ
Box 1324
17125 Solna
Sweden

SWITZERLAND
MARANTZ SWITZERLAND
Postfach
8010 Zürich-Müllingen
Switzerland

TRADING
MARANTZ TRADING
P.O.Box 20008
Building SFF 2
5600 JB Eindhoven
The Netherlands

All of the above locations are fully equipped to take care of your total service needs or can advice you. Because various countries have differing configuration requirements, it is necessary that you contact the service facility in your particular country.
In the event that there is no service location listed for your country, please contact the nearest facility for the necessary assistance.

In case of difficulties, do not hesitate to contact the Technical Department at above mentioned address.

1. TECHNICAL SPECIFICATIONS

FM Tuner Section

Frequency Range	87.5 - 108.0 MHz
Usable Sensitivity	IHF 1.3 µV / 13.5 dBf
Signal to Noise Ratio	Mono / Stereo 78 / 70 dB
Distortion	Mono / Stereo 0.2 / 0.5 %
Stereo Separation	1 kHz 40 dB
A.C.S.	±300 kHz 65 dB
Image Rejection	98 MHz 70 dB
Tuner Output Level	1 kHz, ±40 kHz Dev 940 mV

AM Tuner Section

Frequency Range	531 - 1602 kHz
Usable Sensitivity	Loop 500 µV
Signal to Noise Ratio	50 dB
Distortion	1 kHz, 30 % Mod. 0.5 %
Selectivity	±18 kHz 70 dB

Audio Section

Rated Power	
Front	20 Hz - 20 kHz 8 ohms 70 W / Ch
Center	1 kHz 8 ohms 80 W
Surround	1 kHz 4 ohms 40 W / Ch
THD Front	20 Hz - 20 kHz 8 ohms 0.09 %
Input Sensitivity / Impedance	
Phono	3.5 mV / 47 k ohms
Linear	220 mV / 30 k ohms
Phono Overload (1 kHz, 1 % THD)	
Phono	150 mV
Signal to Noise Ratio (IHF A) RATED Power	
Phono	77 dB
Linear	103 dB

Video Section

Input / Output Level / Impedance	1.0 V_{p-p} / 75 ohms

Others

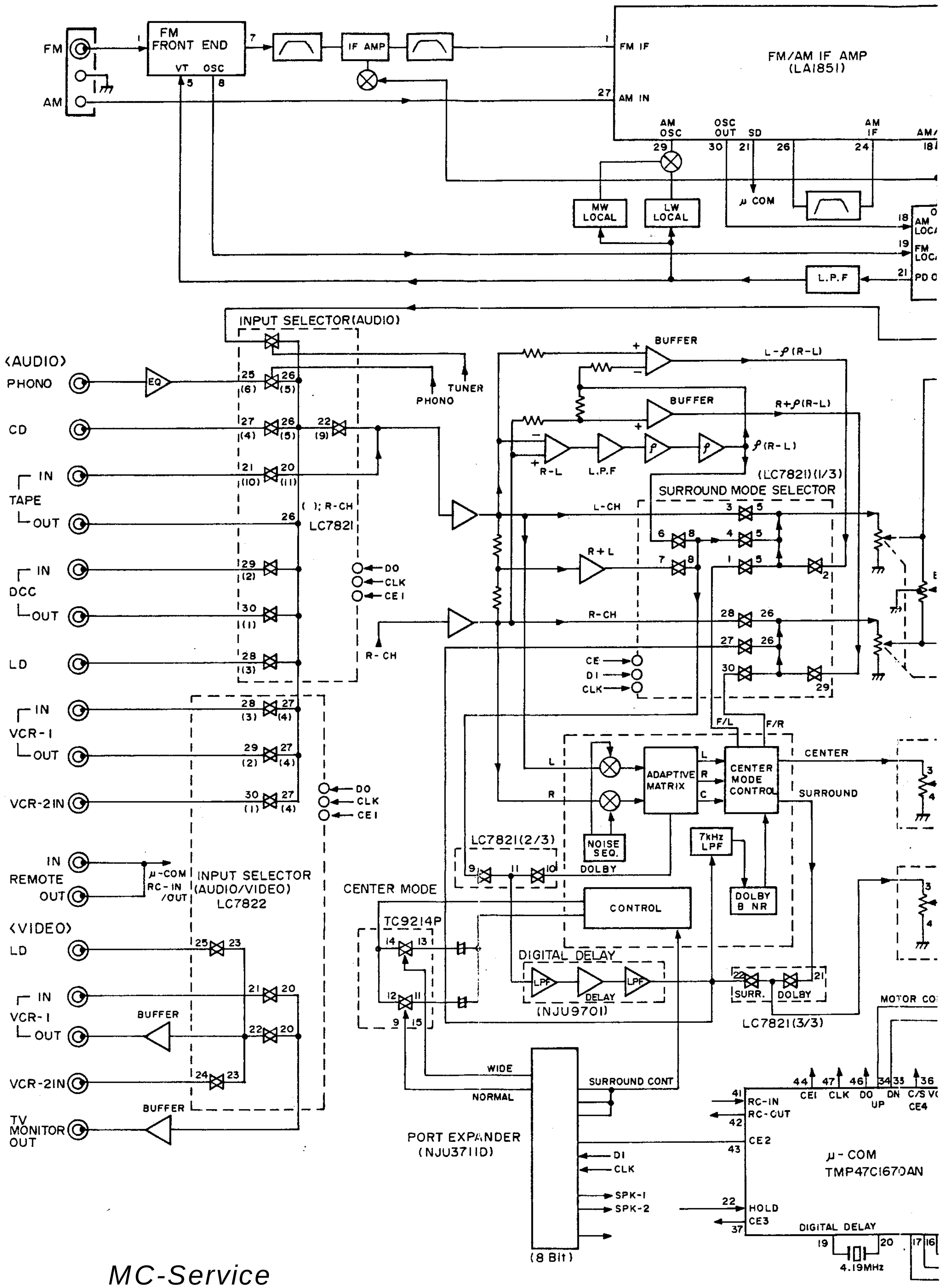
Power Supply	AC 230 V 50 / 60 Hz
Power Consumption	550 W

Dimemsions

Width	16 - 3 / 4 inches (426 mm)
Height	5 - 1 / 4 inches (132 mm)
Depth	13 - 1 / 2 inches (341 mm)
Weight	21 lbs (9.4 kg)

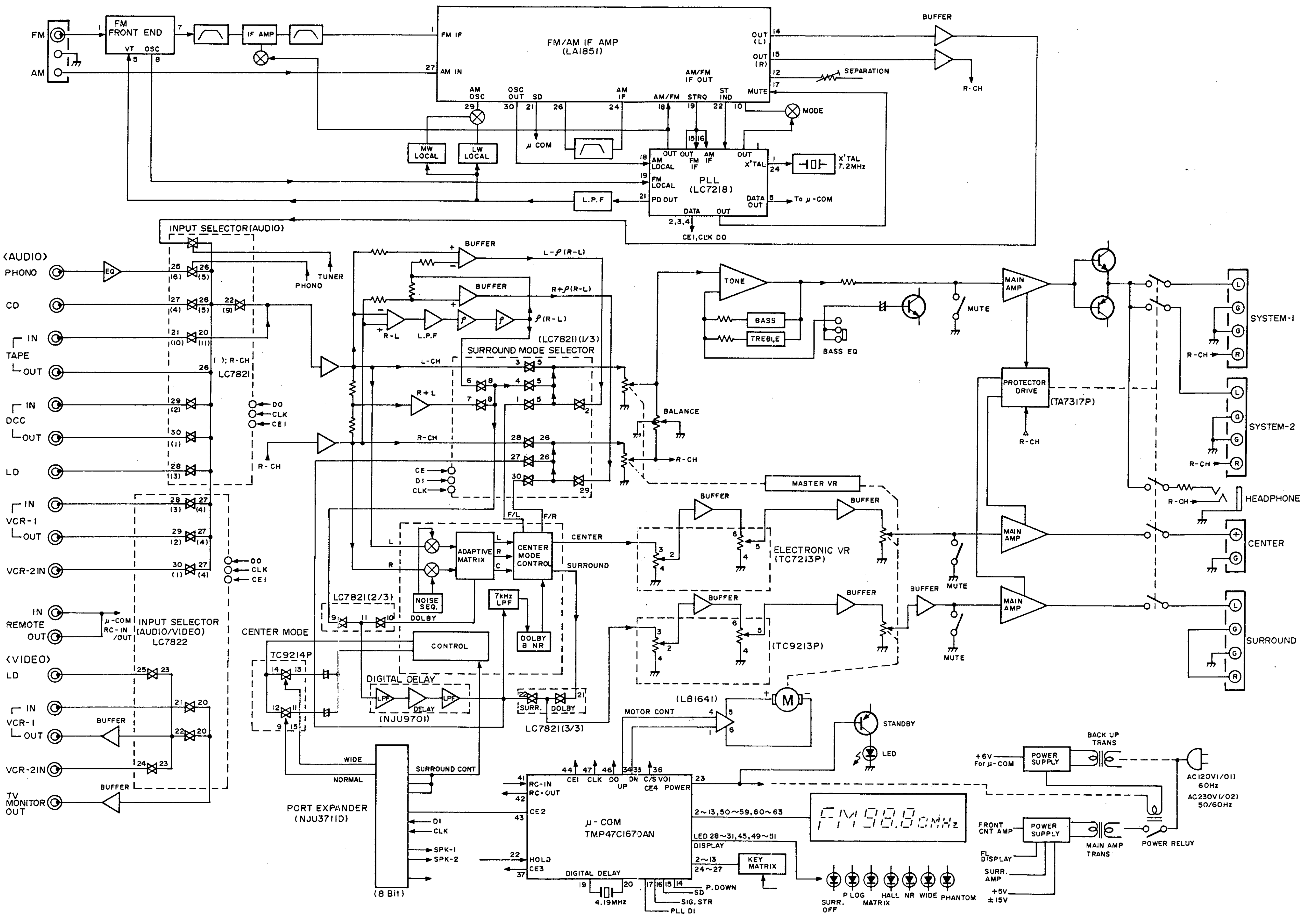
Specifications subject to change without prior notice.

2. BLOCK DIAGRAM

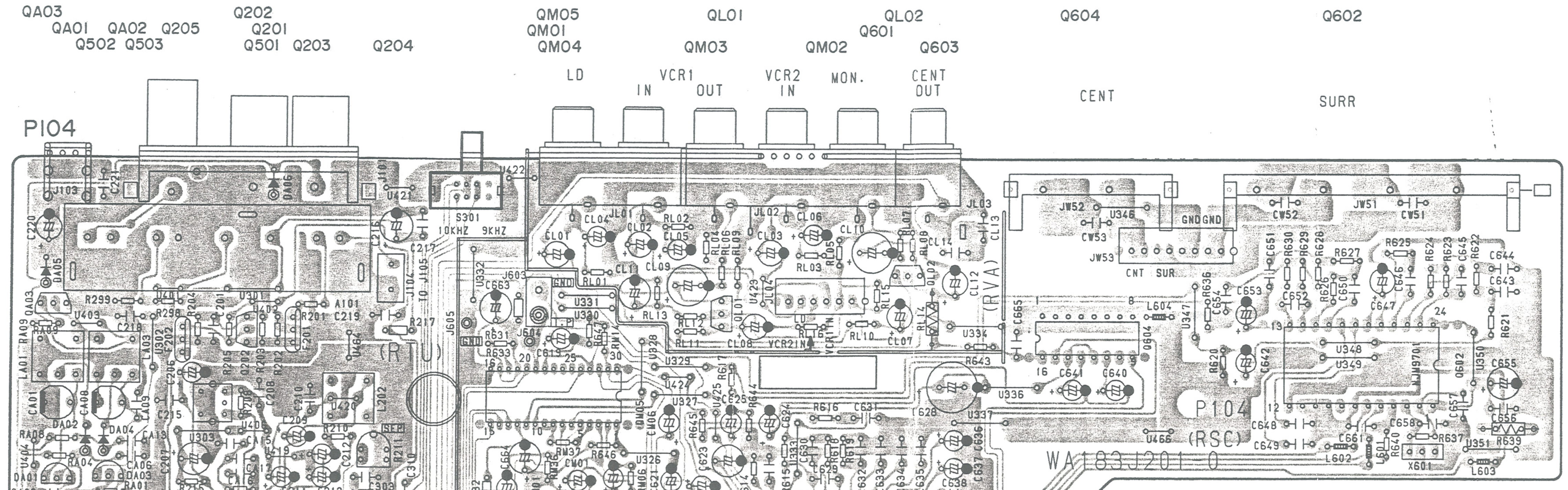
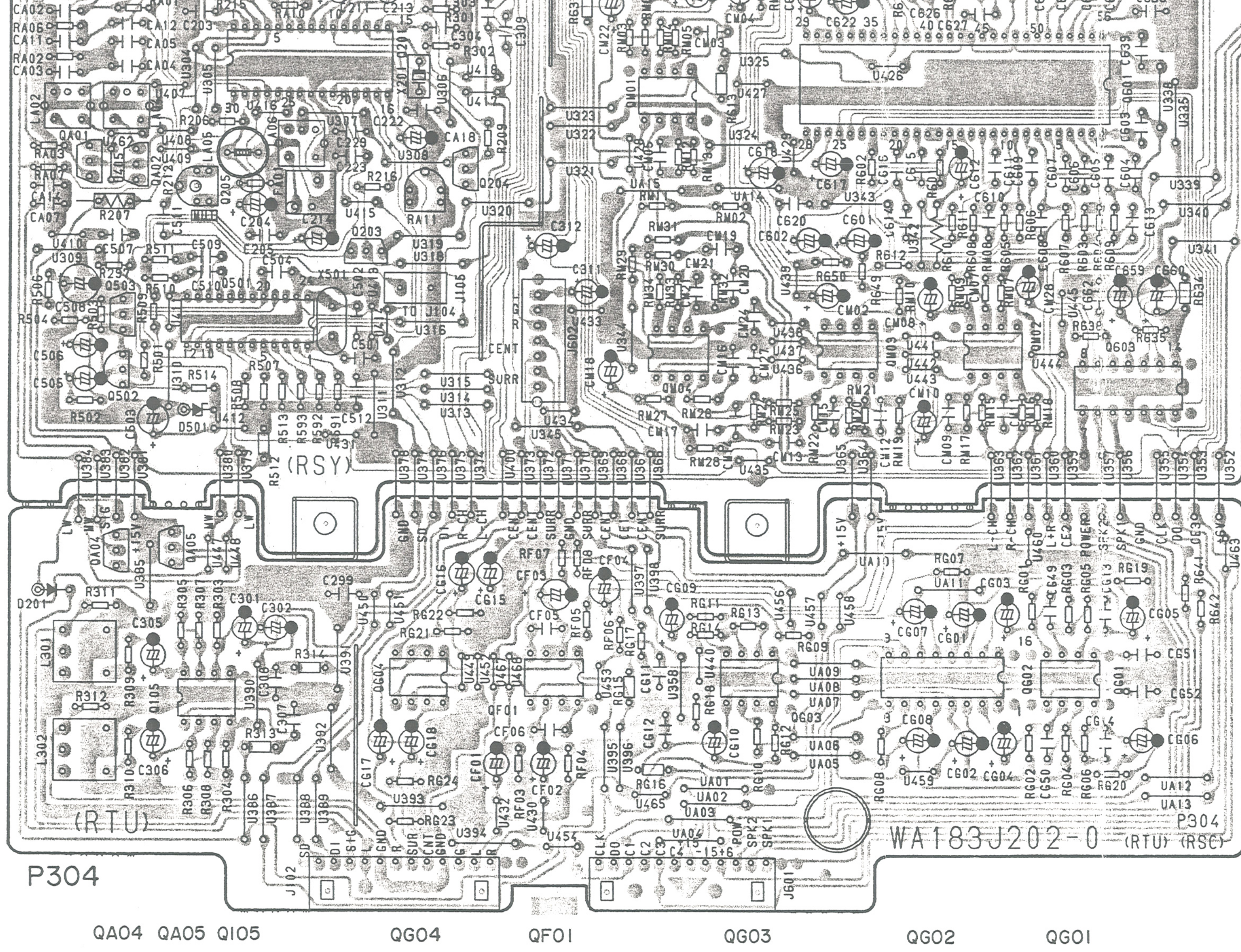

FM
AM
FM FRONT END
VT OSC
IF AMP
FM IF
AM IN
FM/AM IF AMP (LA1851)
AM OSC
OSC OUT
SD
AM IF
MW LOCAL
LW LOCAL
µ COM
L.P.F
AM LOCAL
FM LOCAL
PD O
INPUT SELECTOR(AUDIO)
‹AUDIO›
PHONO
EQ
TUNER
CD
TAPE IN
TAPE OUT
( ); R-CH
LC7821
DCC IN
DCC OUT
DO
CLK
CE I
LD
R-CH
VCR-1 IN
VCR-1 OUT
VCR-2 IN
REMOTE IN
REMOTE OUT
µ-COM RC-IN /OUT
INPUT SELECTOR (AUDIO/VIDEO) LC7822
‹VIDEO›
BUFFER
TV MONITOR OUT
BUFFER
L-ƒ(R-L)
R+ƒ(R-L)
ƒ(R-L)
R-L
L.P.F
(LC7821)(1/3)
SURROUND MODE SELECTOR
L-CH
R+L
R-CH
CE
DI
CLK
F/L
F/R
ADAPTIVE MATRIX
CENTER MODE CONTROL
CENTER
SURROUND
NOISE SEQ.
DOLBY
LC7821(2/3)
7kHz LPF
DOLBY B NR
CENTER MODE
CONTROL
TC9214P
DIGITAL DELAY
LPF
DELAY
(NJU9701)
SURR.
DOLBY
LC7821(3/3)
MOTOR CO
WIDE
NORMAL
SURROUND CONT
PORT EXPANDER (NJU3711D)
(8 Bit)
DI
CLK
SPK-1
SPK-2
RC-IN
RC-OUT
CE2
HOLD
CE3
CEI
CLK
DO
DN
UP
C/S V
CE4
µ-COM TMP47C1670AN
DIGITAL DELAY
4.19MHz

MC-Service

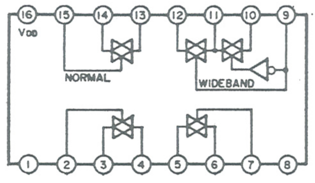
2. BLOCK DIAGRAM


FM
AM
FM FRONT END
VT
OSC
IF AMP
FM/AM IF AMP (LA1851)
FM IF
AM IN
AM OSC
OSC OUT
SD
AM IF
AM/FM IF OUT
AM/FM
STRQ
ST IND
MUTE
OUT (L)
OUT (R)
SEPARATION
BUFFER
R-CH
MODE
MW LOCAL
LW LOCAL
μ COM
PLL (LC7218)
AM LOCAL
FM LOCAL
PD OUT
X'TAL
X'TAL 7.2MHz
DATA OUT
To μ-COM
L.P.F
CE1,CLK DO
INPUT SELECTOR(AUDIO)
〈AUDIO〉
PHONO
EQ
TUNER
CD
TAPE IN
TAPE OUT
( ): R-CH
LC7821
DCC IN
DCC OUT
LD
DO
CLK
CE1
VCR-1 IN
VCR-1 OUT
VCR-2 IN
REMOTE IN
REMOTE OUT
μ-COM
RC-IN
/OUT
INPUT SELECTOR (AUDIO/VIDEO) LC7822
〈VIDEO〉
LD
VCR-1 IN
VCR-1 OUT
VCR-2 IN
TV MONITOR OUT
BUFFER
L-ρ(R-L)
R+ρ(R-L)
ρ(R-L)
R-L
L.P.F
(LC7821)(1/3)
SURROUND MODE SELECTOR
L-CH
R+L
R-CH
CE
DI
CLK
BALANCE
R-CH
MASTER VR
TONE
BASS
TREBLE
BASS EQ
MUTE
MAIN AMP
PROTECTOR DRIVE (TA7317P)
SYSTEM-1
SYSTEM-2
HEADPHONE
CENTER
SURROUND
L
G
R
F/L
F/R
ADAPTIVE MATRIX
CENTER MODE CONTROL
NOISE SEQ.
DOLBY
7kHz LPF
DOLBY B NR
LC7821(2/3)
CENTER MODE
CONTROL
TC9214P
DIGITAL DELAY
LPF
DELAY
(NJU9701)
SURR.
LC7821(3/3)
ELECTRONIC VR (TC7213P)
(TC9213P)
(LB1641)
MOTOR CONT
M
STANDBY
LED
PORT EXPANDER (NJU3711D)
(8 Bit)
WIDE
NORMAL
SURROUND CONT
DI
CLK
SPK-1
SPK-2
μ-COM TMP47C1670AN
RC-IN
RC-OUT
CE2
HOLD
CE3
CE1
CLK
DO
UP
DN
C/S VOI
CE4
POWER
2~13,50~59,60~63
LED 28~31,45,49~51
DISPLAY
2~13
24~27
KEY MATRIX
DIGITAL DELAY
4.19MHz
P.DOWN
SD
SIG.STR
PLL DI
FM 98.8 MHz
SURR. OFF
P LOG
MATRIX
HALL
NR
WIDE
PHANTOM
+6V For μ-COM
POWER SUPPLY
BACK UP TRANS
AC120V(/01) 60Hz
AC230V(/02) 50/60Hz
FRONT CNT AMP
FL DISPLAY
SURR. AMP
+5V
±15V
MAIN AMP TRANS
POWER RELUY

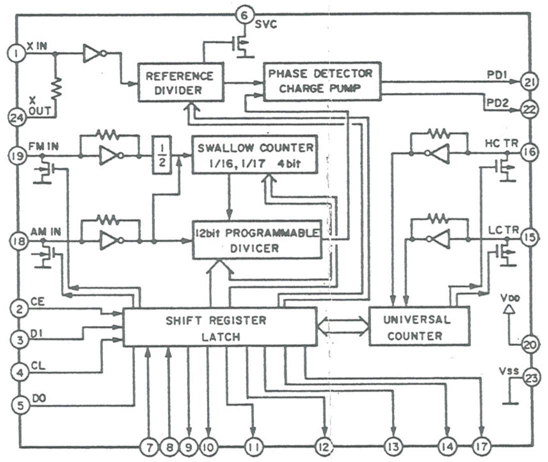
3. SCHEMATIC DIAGRAM AND PARTS LOCATION (Pattern side)



QA03
QA01 QA02 Q205
Q502 Q503
Q202
Q201
Q501 Q203
Q204
QM05
QM01
QM04
QL01
QM03
QL02
Q601
QM02
Q603
Q604
Q602
LD
VCR1
IN
OUT
VCR2
IN
MON.
CENT
OUT
CENT
SURR
P104
(RTU)
(RVA)
(RSC)
WA183J201-0
(RSY)
P104
P304
(RTU)
WA183J202-0 (RTU) (RSC)
P304
QA04 QA05 Q105
QG04
QF01
QG03
QG02
QG01

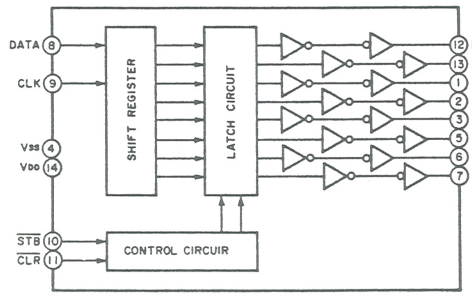
Q604 : TC9214P


VDD
NORMAL
WIDEBAND
16
15
14
13
12
11
10
9
1
2
3
4
5
6
7
8

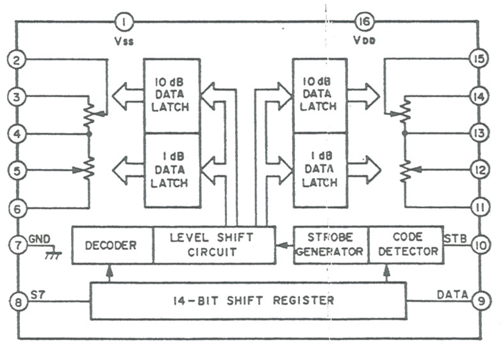
Q501 : LC7218


SVC
XIN
X OUT
REFERENCE DIVIDER
PHASE DETECTOR CHARGE PUMP
PD1
PD2
FM IN
1/2
SWALLOW COUNTER 1/16, 1/17 4bit
HC TR
AM IN
12bit PROGRAMMABLE DIVICER
LC TR
VDD
CE
DI
CL
DO
SHIFT REGISTER LATCH
UNIVERSAL COUNTER
VSS

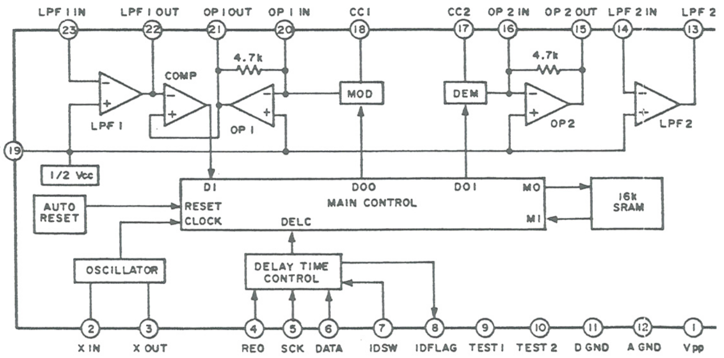
Q603 : NJU3711

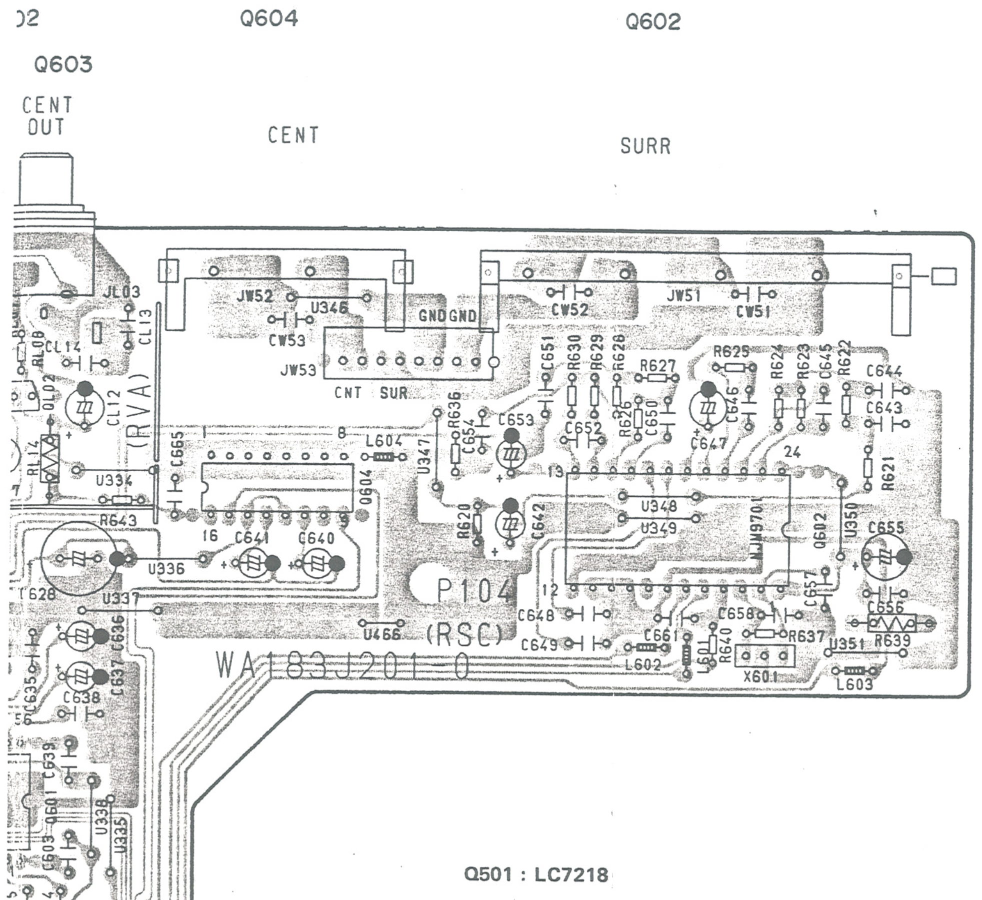
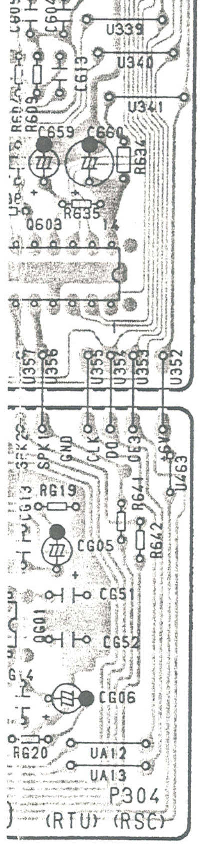

DATA
CLK
VSS
VDD
SHIFT REGISTER
LATCH CIRCUIT
STB
CLR
CONTROL CIRCUIR
P1
P2
P3
P4
P5
P6
P7
P8

QG02 : TC9213P


VSS
VDD
10 dB DATA LATCH
1 dB DATA LATCH
10 dB DATA LATCH
1 dB DATA LATCH
GND
DECODER
LEVEL SHIFT CIRCUIT
STROBE GENERATOR
CODE DETECTOR
STB
S7
14-BIT SHIFT REGISTER
DATA

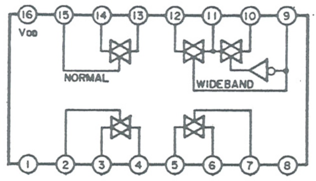
Q602 : NJU9701


LPF1 IN
LPF1 OUT
OP1 OUT
OP1 IN
CC1
CC2
OP2 IN
OP2 OUT
LPF2 IN
LPF 2
COMP
4.7k
4.7k
LPF1
OP1
MOD
DEM
OP2
LPF2
REF
1/2 Vcc
AUTO RESET
DI
RESET
CLOCK
DOO
MAIN CONTROL
DOI
MO
MI
16k SRAM
DELC
OSCILLATOR
DELAY TIME CONTROL
XIN
X OUT
REO
SCK
DATA
IDSW
IDFLAG
TEST1
TEST2
DGND
AGND
VDD

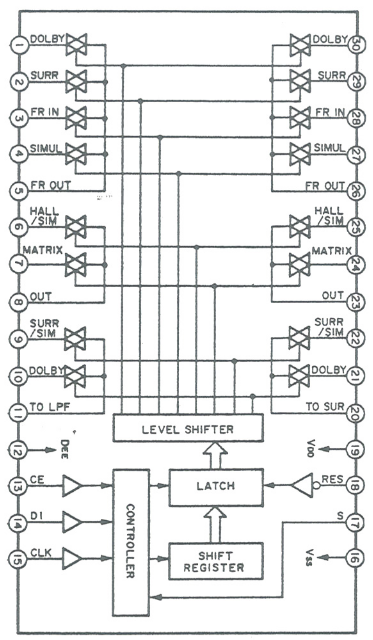
Q603
Q604
Q602
CENT OUT
CENT
SURR
JL03
JW52
U346
GND GND
CW52
JW51
CW51
CW53
JW53
CNT SUR
CL12
(RVA)
U334
R643
U336
C641
C640
Q604
U347
L604
C665
C653
C654
R636
C651
R630
R629
R628
R627
R625
R624
R623
R622
C644
C643
C645
C646
C647
C650
C652
R626
R621
U348
U349
NJU9701
Q602
U350
C655
C656
R620
C642
P104
C648
C649
U466
(RSC)
C658
C657
C661
R637
U351
R639
R640
X601
L602
L603
WA183J201-0
C636
C637
C638
C635
U338
C660
C659
R634
R635
U339
U340
U341
Q603
U357
U356
U355
U354
U353
U352
U463
R619
R641
R642
C605
C651
C652
C606
R620
UA12
UA13
P304
(RTU) (RSC)

Q604 : TC9214P



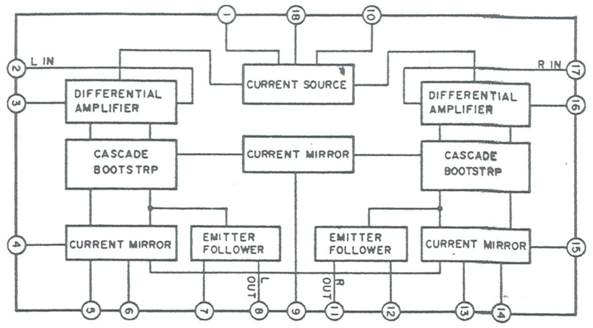
16
15
14
13
12
11
10
9
VDD
NORMAL
WIDEBAND
1
2
3
4
5
6
7
8

QM05,QV01,QV02 : LC7821



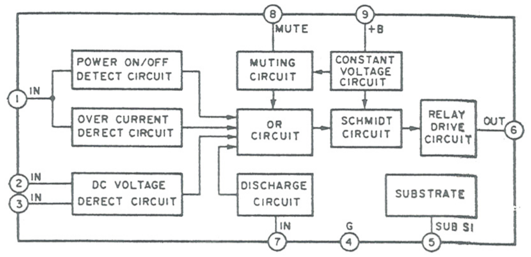
DOLBY
SURR
FR IN
SIMUL
FR OUT
HALL /SIM
MATRIX
OUT
SURR /SIM
DOLBY
TO LPF
DEE
CE
DI
CLK
LEVEL SHIFTER
LATCH
CONTROLLER
SHIFT REGISTER
RES
S
VDD
VSS
TO SUR

Q715 :AN7062N



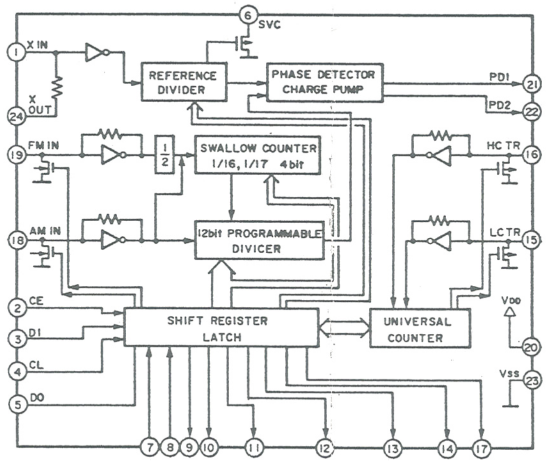
L IN
R IN
DIFFERENTIAL AMPLIFIER
CURRENT SOURCE
DIFFERENTIAL AMPLIFIER
CASCADE BOOTSTRP
CURRENT MIRROR
CASCADE BOOTSTRP
CURRENT MIRROR
EMITTER FOLLOWER
EMITTER FOLLOWER
CURRENT MIRROR
L OUT
R OUT

QN06 : TA7317P



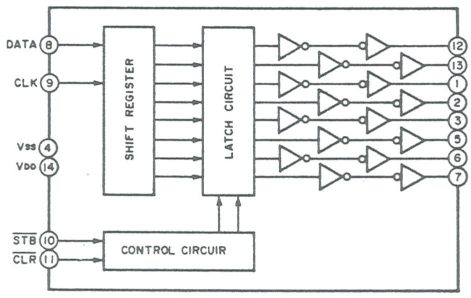
MUTE
+B
IN
POWER ON/OFF DETECT CIRCUIT
MUTING CIRCUIT
CONSTANT VOLTAGE CIRCUIT
OVER CURRENT DERECT CIRCUIT
OR CIRCUIT
SCHMIDT CIRCUIT
RELAY DRIVE CIRCUIT
OUT
DC VOLTAGE DERECT CIRCUIT
DISCHARGE CIRCUIT
SUBSTRATE
IN
G
SUB SI

Q501 : LC7218



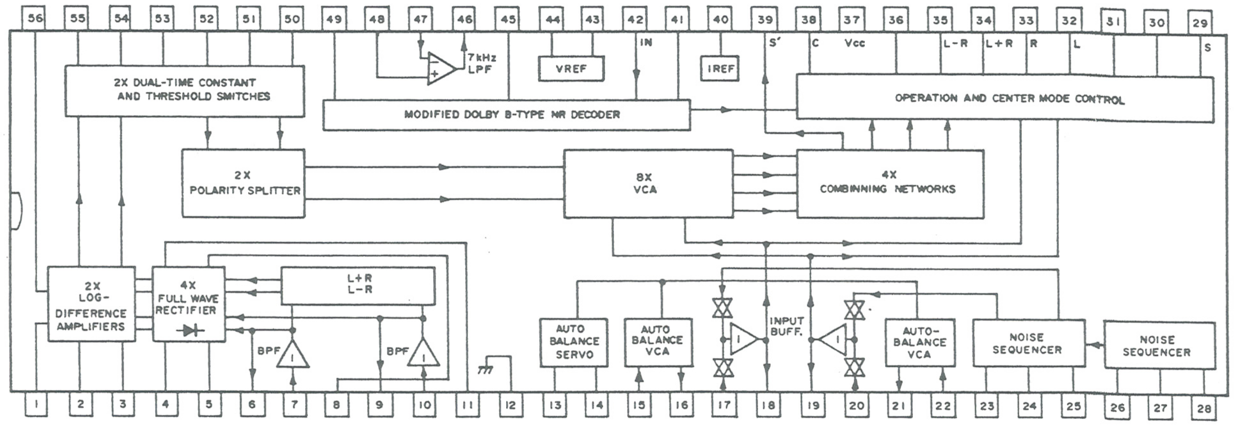
X IN
SVC
X OUT
REFERENCE DIVIDER
PHASE DETECTOR CHARGE PUMP
PD1
PD2
FM IN
SWALLOW COUNTER 1/16, 1/17 4bit
HC TR
AM IN
12bit PROGRAMMABLE DIVICER
LC TR
CE
DI
CL
DO
SHIFT REGISTER LATCH
UNIVERSAL COUNTER
VDD
VSS

Q603 : NJU3711



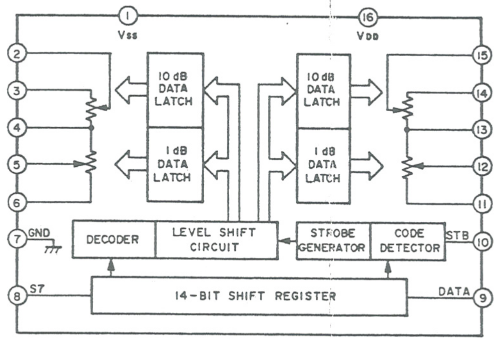
DATA
CLK
VSS
VDD
SHIFT REGISTER
LATCH CIRCUIT
CONTROL CIRCUIR
STB
CLR
P1
P2
P3
P4
P5
P6
P7
P8

Q601 : NJM2177L



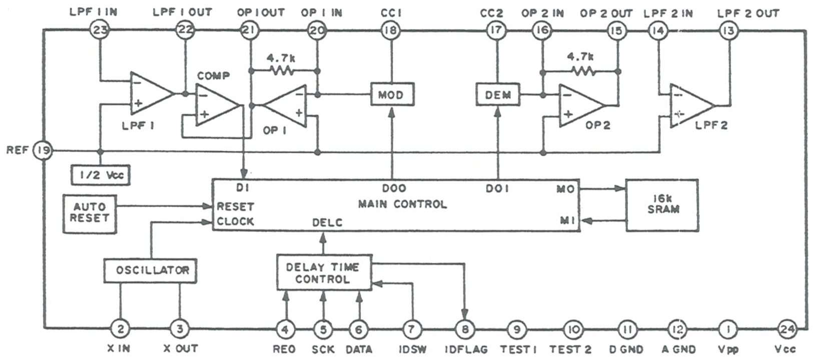
7kHz LPF
VREF
IN
IREF
S'
C
Vcc
L-R
L+R
R
L
S
2X DUAL-TIME CONSTANT AND THRESHOLD SWITCHES
MODIFIED DOLBY B-TYPE NR DECODER
OPERATION AND CENTER MODE CONTROL
2X POLARITY SPLITTER
8X VCA
4X COMBINNING NETWORKS
2X LOG-DIFFERENCE AMPLIFIERS
4X FULL WAVE RECTIFIER
L+R L-R
BPF
BPF
AUTO BALANCE SERVO
AUTO BALANCE VCA
INPUT BUFF.
AUTO-BALANCE VCA
NOISE SEQUENCER
NOISE SEQUENCER

QG02 : TC9213P



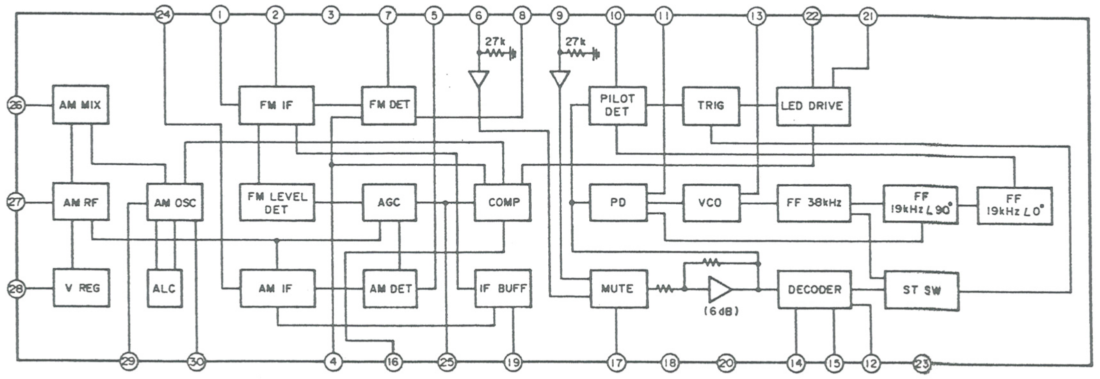
Vss
VDD
10dB DATA LATCH
1dB DATA LATCH
10dB DATA LATCH
1dB DATA LATCH
GND
DECODER
LEVEL SHIFT CIRCUIT
STROBE GENERATOR
CODE DETECTOR
STB
S7
14-BIT SHIFT REGISTER
DATA

Q602 : NJU9701



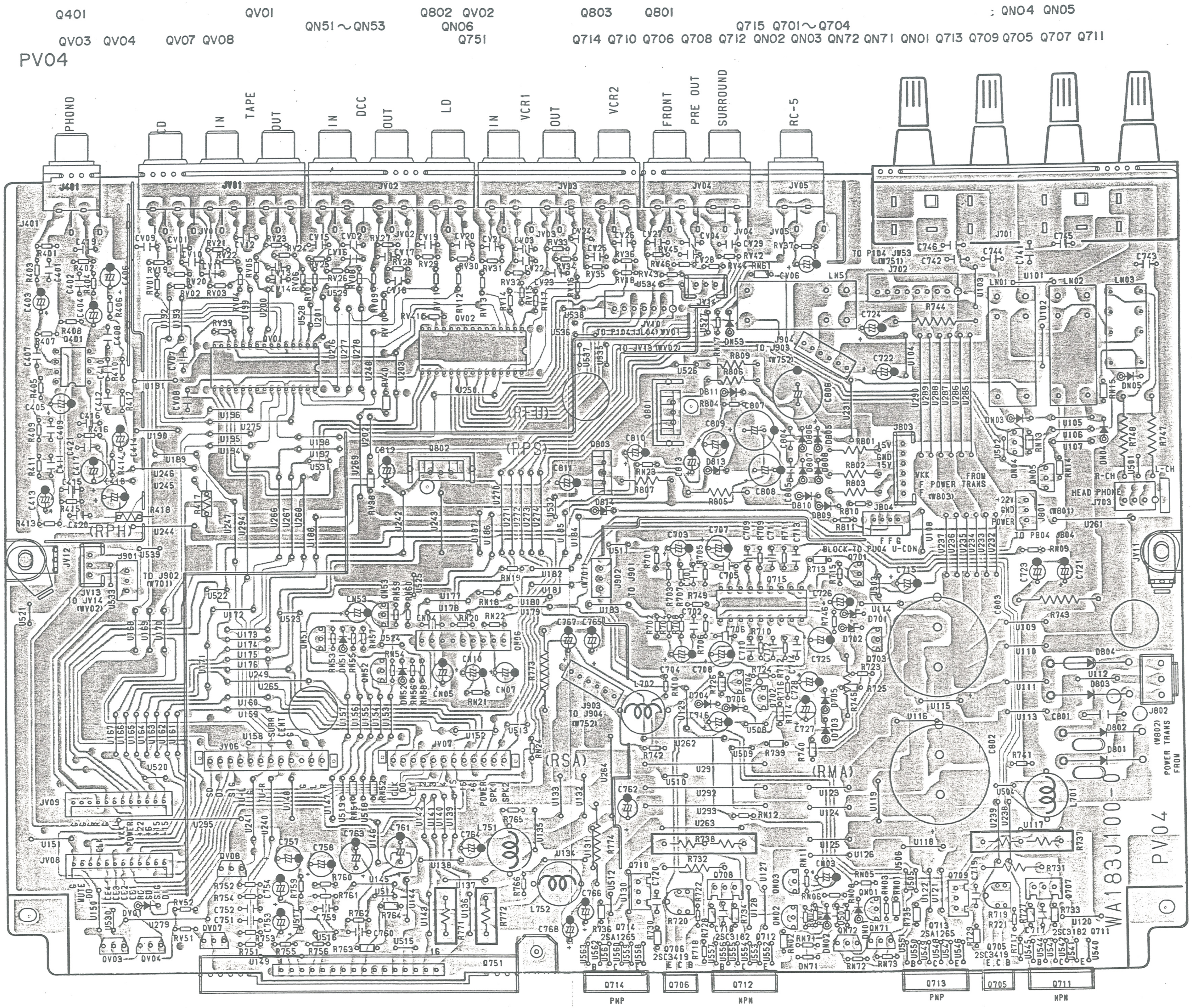
LPF 1 IN
LPF 1 OUT
OP 1 OUT
OP 1 IN
CC1
CC2
OP 2 IN
OP 2 OUT
LPF 2 IN
LPF 2 OUT
COMP
4.7k
4.7k
LPF 1
OP 1
MOD
DEM
OP2
LPF2
REF
1/2 Vcc
AUTO RESET
DI
DOO
DOI
MO
MI
RESET
CLOCK
MAIN CONTROL
DELC
16k SRAM
OSCILLATOR
DELAY TIME CONTROL
X IN
X OUT
REO
SCK
DATA
IDSW
IDFLAG
TEST1
TEST2
D GND
A GND
Vpp
Vcc

Q201 : LA1851N

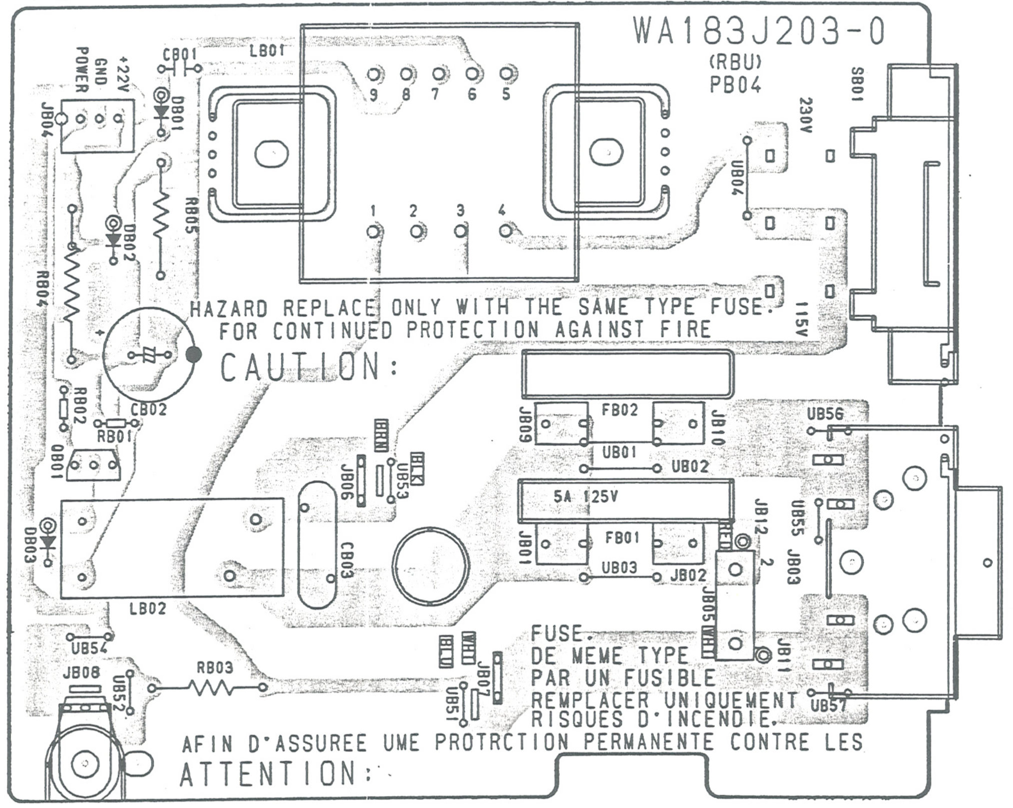


27k
27k
AM MIX
FM IF
FM DET
PILOT DET
TRIG
LED DRIVE
AM RF
AM OSC
FM LEVEL DET
AGC
COMP
PD
VCO
FF 38kHz
FF 19kHz L90°
FF 19kHz L0°
V REG
ALC
AM IF
AM DET
IF BUFF
MUTE
(6dB)
DECODER
ST SW

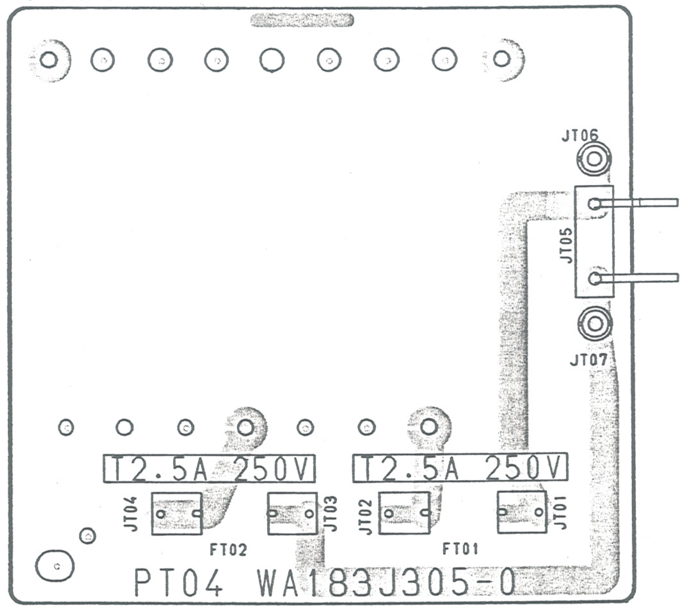
PV04


Q401
QV03 QV04
QV01
QV07 QV08
QN51～QN53
Q802 QV02
QN06
Q751
Q803
Q801
Q714 Q710 Q706 Q708 Q712 QN02 QN03 QN72 QN71 QN01 Q713 Q709 Q705 Q707 Q711
Q715 Q701～Q704
QN04 QN05
PHONO
CD
IN
TAPE
OUT
IN
DCC
OUT
LD
IN
VCR1
OUT
VCR2
FRONT
PRE OUT
SURROUND
RC-5
J401
JV01
JV02
JV03
JV04
JV05
J701
J702
LN01
LN02
LN03
LN5
(RFU)
(RPS)
(RPH)
(RSA)
(RMA)
TO P104 JW53 (W751)
TO J903 (W752)
TO JV13 (WV02)
TO P104 (3L04) WV01
TO J902 (W701)
TO JV14 (WV02)
TO PB04 JB04
BLOCK-TO PU04 U-CON
VKK POWER FROM TRANS (W803)
HEAD PHONE
R-CH
L-CH
J703
J802
(W802) POWER TRANS FROM
JV06
JV07
JV08
JV09
Q714 PNP
Q706
Q712 NPN
Q713 PNP
Q705
Q711 NPN
2SA1265
2SC3419
2SC3182
E C B
WA183J100-0
PV04

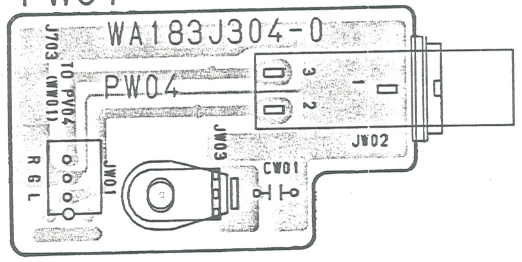
QB01
PB04


WA183J203-0
(RBU)
PB04
HAZARD REPLACE ONLY WITH THE SAME TYPE FUSE.
FOR CONTINUED PROTECTION AGAINST FIRE
CAUTION:
5A 125V
FUSE.
DE MEME TYPE
PAR UN FUSIBLE
REMPLACER UNIQUEMENT
RISQUES D'INCENDIE.
AFIN D'ASSUREE UME PROTRCTION PERMANENTE CONTRE LES
ATTENTION:
230V
115V
SB01
LB01
LB02
CB01
CB02
CB03
DB01
DB02
DB03
RB01
RB03
RB04
RB05
QB01
FB01
FB02
UB01
UB02
UB03
UB04
UB51
UB52
UB53
UB54
UB55
UB56
UB57
JB01
JB02
JB03
JB04
JB05
JB06
JB07
JB08
JB09
JB10
JB11
JB12
POWER
GND
+22V

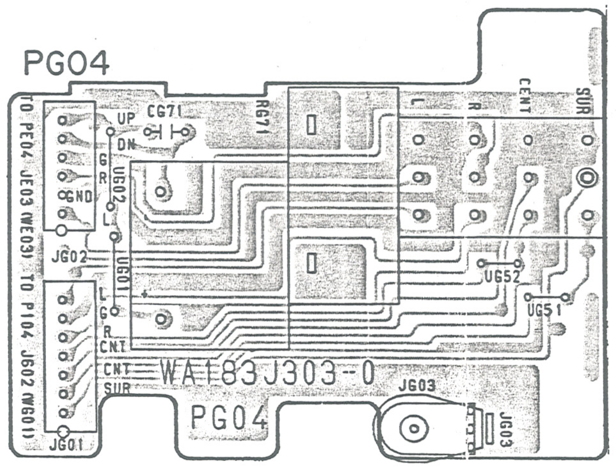
PT04


T2.5A 250V
T2.5A 250V
PT04 WA183J305-0
JT01
JT02
JT03
JT04
JT05
JT06
JT07
FT01
FT02

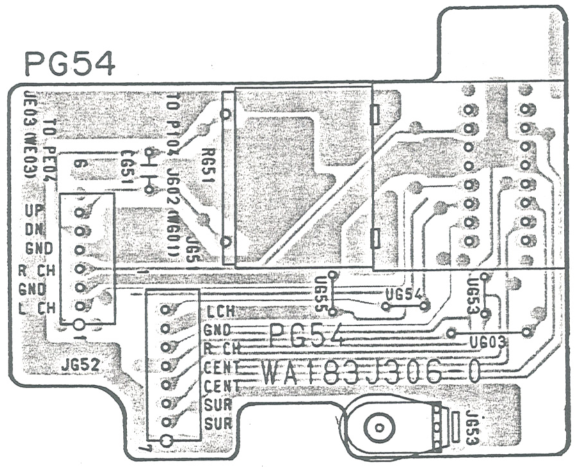
PW04

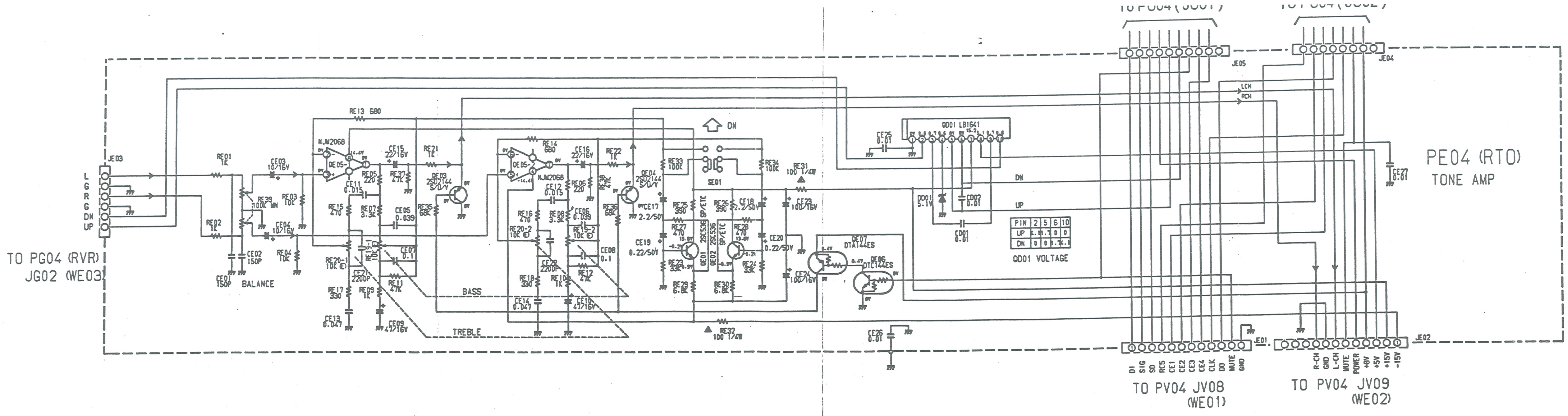

WA183J304-0
PW04
JT03 TO PV04 (WW01)
R G L
JW01
JW02
JW03
CW01

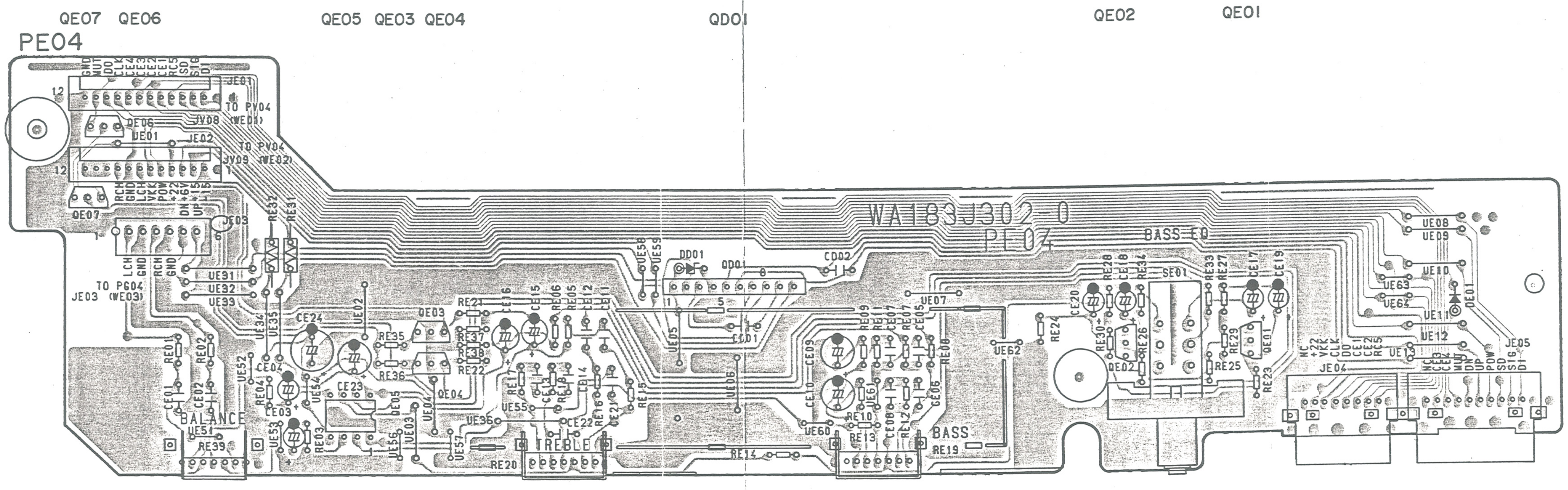
PG04


TO PE04 JE03 (WE03)
TO P104 J602 (WG01)
WA183J303-0
PG04
UP
DN
G
R
GND
L
G
R
CNT
CNT
SUR
CENT
SUR
CG71
RG71
JG01
JG02
JG03
UG01
UG02
UG51
UG52

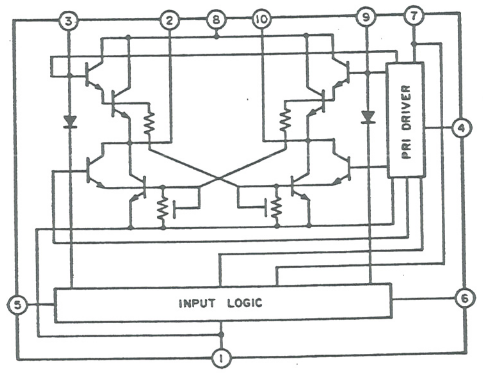
PG54

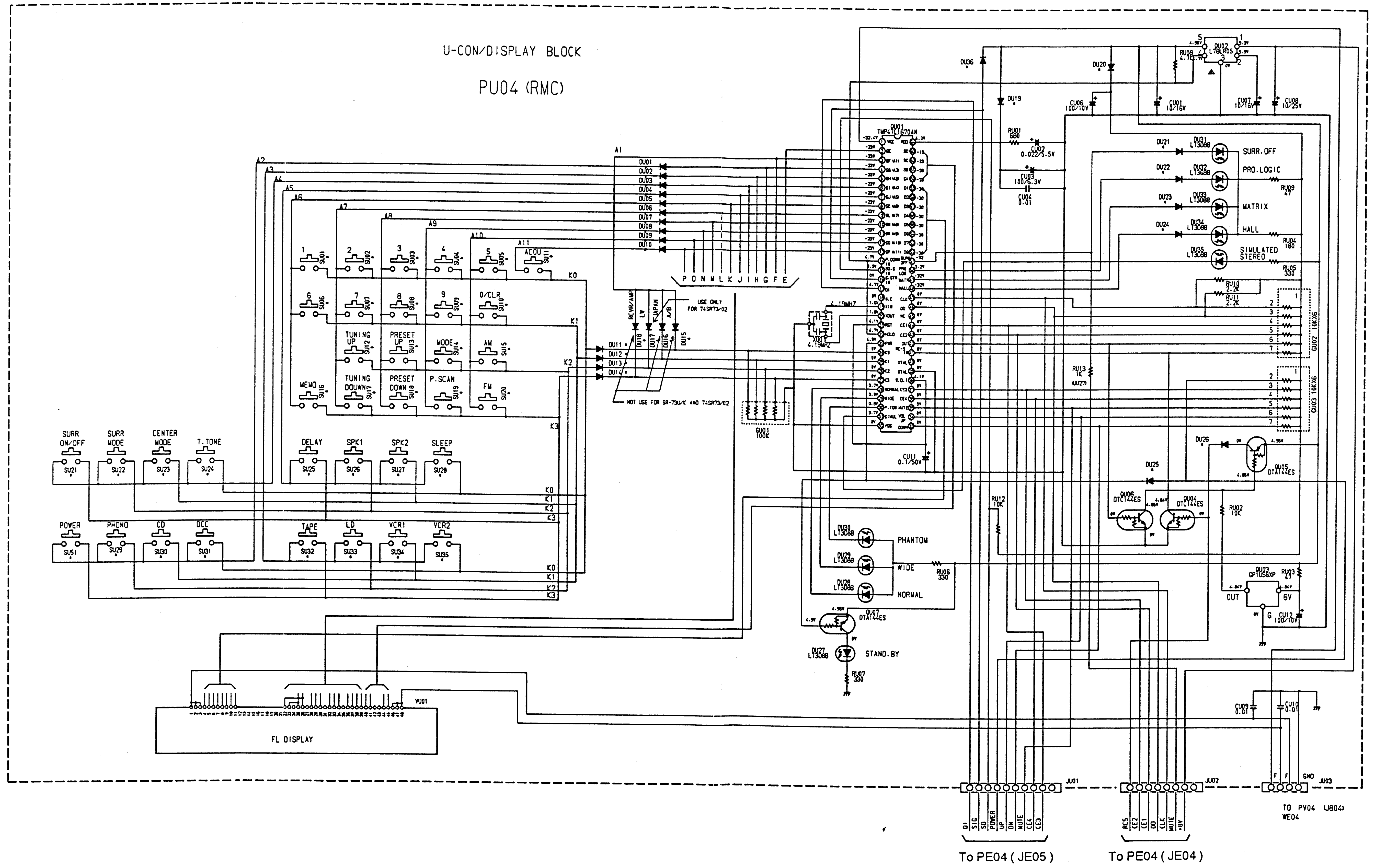

JE03 (WE03)
TO PE04
TO PT04 J602 (WG01)
UP
DN
GND
R CH
GND
L CH
LCH
GND
R CH
CENT
CENT
SUR
SUR
PG54
WA183J306-0
RG51
CG51
JG52
JG53
UG03
UG53
UG54
UG55


PE04 (RTO)
TONE AMP
TO PG04 (RVR)
JG02 (WE03)
JE03
L
G
R
G
DN
UP
BALANCE
BASS
TREBLE
ON
SE01
QD01 LB1641
QD01 VOLTAGE
PIN 2 5 6 10
UP
DN
DN
UP
LCH
RCH
JE05
JE04
JE01
JE02
NJM2068
DTA124ES
DTC124ES
DI SIG SD RC5 CE1 CE2 CE3 CE4 CLK DO MUTE GND
R-CH GND L-CH MUTE POWER +8V +5V +15V -15V
TO PV04 JV08
(WE01)
TO PV04 JV09
(WE02)

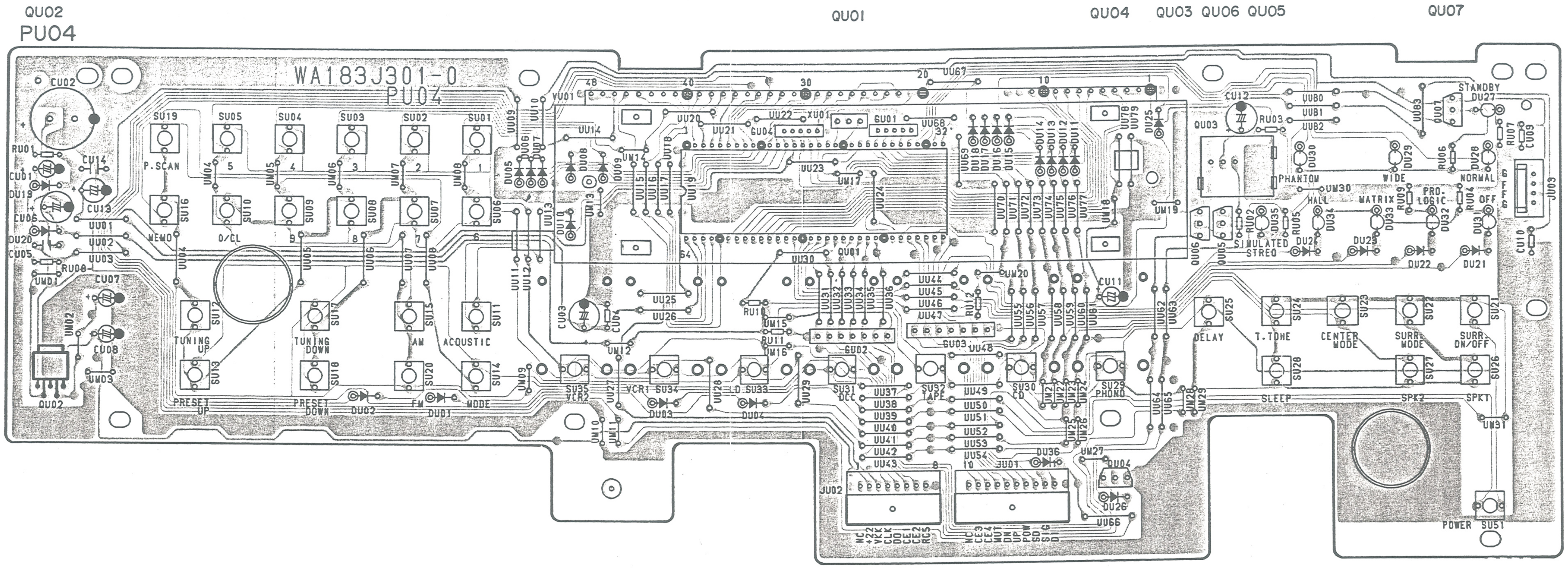

QE07 QE06
QE05 QE03 QE04
QD01
QE02
QE01
PE04
WA183J302-0
PE04
BASS EQ
TO PV04
JV08 (WE01)
TO PV04
JV09 (WE02)
TO PG04
JE03 (WE03)
BALANCE
TREBLE
BASS

QD01 : LB1641

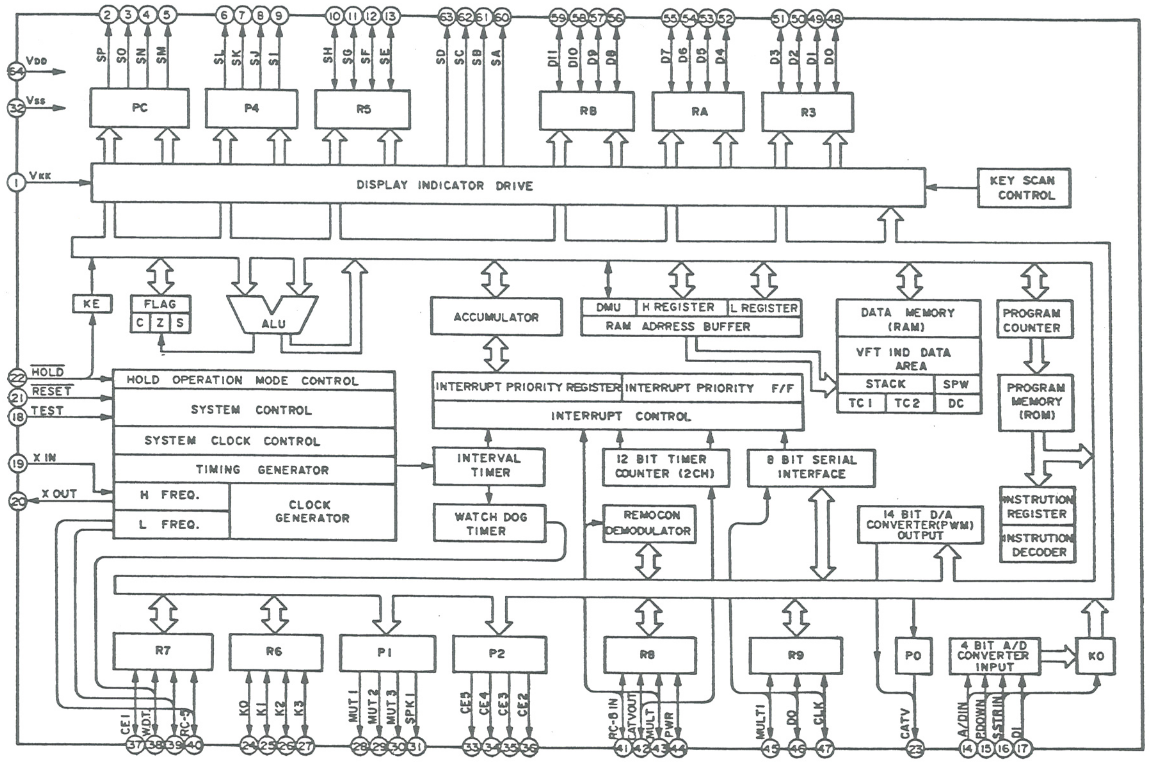

PRI DRIVER
INPUT LOGIC
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩


U-CON/DISPLAY BLOCK
PU04 (RMC)
QU01 TMP47C1670AN
QU02 L78LR05
SURR.OFF
PRO.LOGIC
MATRIX
HALL
SIMULATED STEREO
PHANTOM
WIDE
NORMAL
STAND.BY
RCVR/AMP
LW
JAPAN
A/B
USE ONLY FOR 74SR73/02
NOT USE FOR SR-73U/C AND 74SR73/02
4.19MHZ
XQU01 4.19MHZ
QU03 GP1U58XP
QU05 DTA144ES
QU06 DTC144ES
QU04 DTC144ES
QU07 DTA144ES
SURR ON/OFF
SURR MODE
CENTER MODE
T.TONE
DELAY
SPK1
SPK2
SLEEP
POWER
PHONO
CD
DCC
TAPE
LD
VCR1
VCR2
TUNING UP
PRESET UP
MODE
AM
TUNING DOUWN
PRESET DOWN
P.SCAN
FM
MEMO
0/CLR
ACOU
FL DISPLAY
VU01
JU01
JU02
JU03
DI SIG SD POWER UP DN MUTE CE4 CE3
RCS CE2 CE1 DO CLK MUTE +8V
F F GND
TO PV04 (J804) WE04
To PE04 (JE05)
To PE04 (JE04)

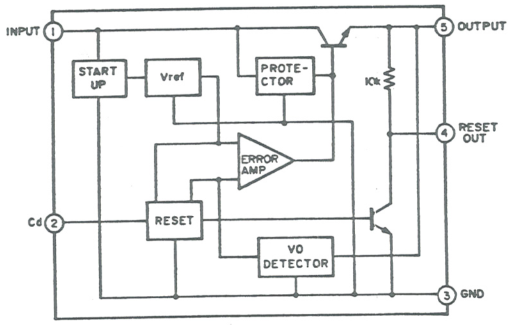
MC-Service


QU02
PU04
QU01
QU04
QU03 QU06 QU05
QU07
WA183J301-0
PU04
P.SCAN
MEMO
D/CL
TUNING UP
TUNING DOWN
AM
ACOUSTIC
PRESET UP
PRESET DOWN
FM
MODE
VCR2
VCR1
LD
DCC
TAPE
CD
PHONO
DELAY
T.TONE
CENTER MODE
SURR. MODE
SURR. ON/OFF
SLEEP
SPK2
SPK1
STANDBY
PHANTOM
WIDE
NORMAL
HALL
MATRIX
PRO-LOGIC
OFF
SIMULATED STREO
POWER
JU02
JU01
JU03

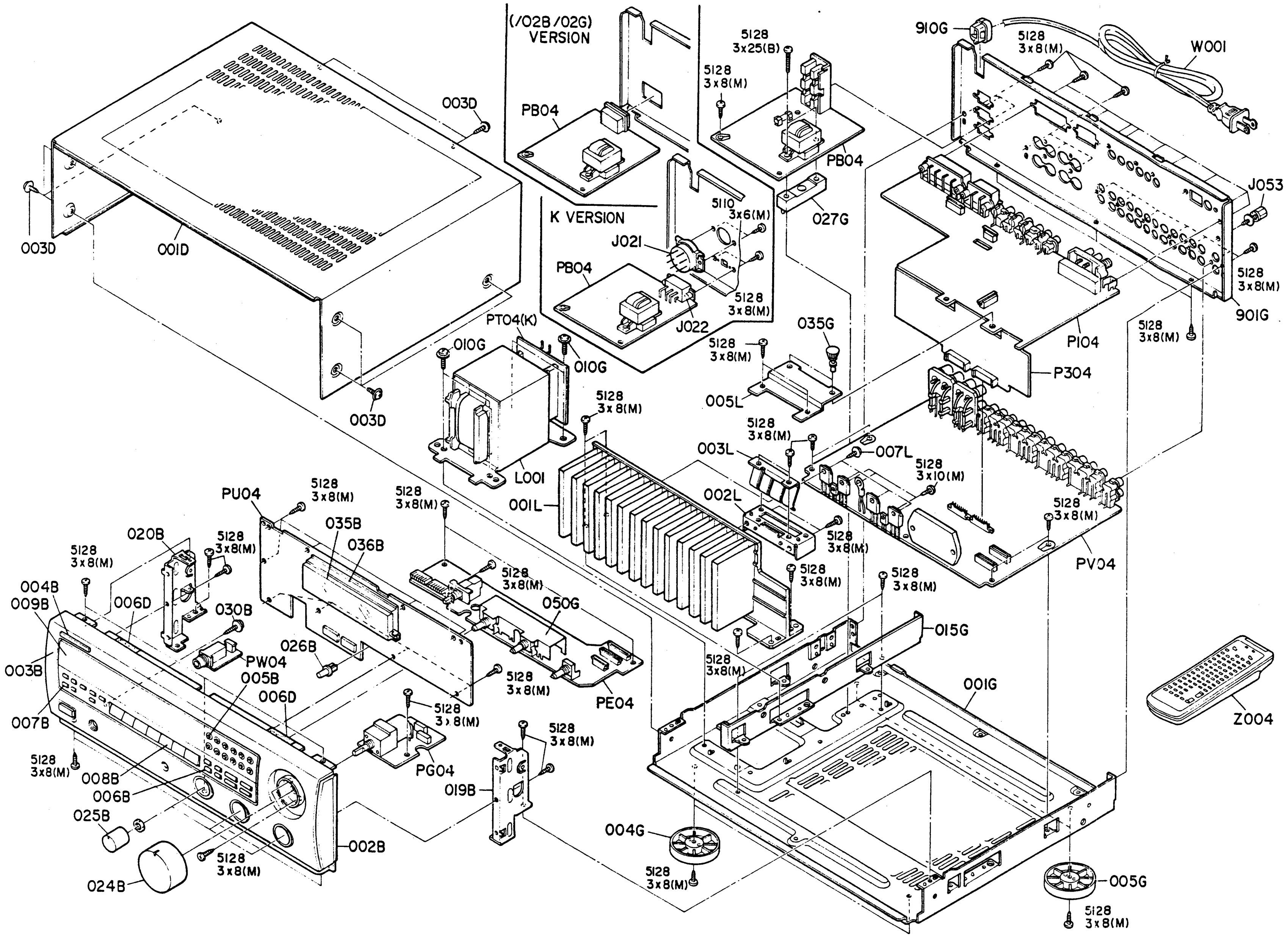
QU01 : TMP47C1670AN


VDD
VSS
VKK
HOLD
RESET
TEST
X IN
X OUT
SP SO SN SM
SL SK SJ SI
SH SG SF SE
SD SC SB SA
D11 D10 D9 D8
D7 D6 D5 D4
D3 D2 D1 D0
PC
P4
R5
RB
RA
R3
DISPLAY INDICATOR DRIVE
KEY SCAN CONTROL
KE
FLAG
C Z S
ALU
ACCUMULATOR
DMU
H REGISTER
L REGISTER
RAM ADDRESS BUFFER
DATA MEMORY (RAM)
VFT IND DATA AREA
STACK
SPW
TC1
TC2
DC
PROGRAM COUNTER
PROGRAM MEMORY (ROM)
HOLD OPERATION MODE CONTROL
SYSTEM CONTROL
SYSTEM CLOCK CONTROL
TIMING GENERATOR
H FREQ.
L FREQ.
CLOCK GENERATOR
INTERRUPT PRIORITY REGISTER
INTERRUPT PRIORITY F/F
INTERRUPT CONTROL
INTERVAL TIMER
WATCH DOG TIMER
12 BIT TIMER COUNTER (2CH)
REMOCON DEMODULATOR
8 BIT SERIAL INTERFACE
14 BIT D/A CONVERTER(PWM) OUTPUT
INSTRUTION REGISTER
INSTRUTION DECODER
R7
R6
P1
P2
R8
R9
P0
4 BIT A/D CONVERTER INPUT
K0
CE1 WDT RC-5
K0 K1 K2 K3
MUT 1 MUT 2 MUT 3 SPK 1
CE5 CE4 CE3 CE2
RC-5IN CATVOUT MULT PWR
MULTI DO CLK
CATV
A/DIN PDOWN STRLIN DI

QU02 : L78LR05


INPUT
OUTPUT
START UP
Vref
PROTE-CTOR
Rk
RESET OUT
ERROR AMP
Cd
RESET
VO DETECTOR
GND
1
2
3
4
5

4. EXPLODED VIEW AND PARTS LIST


(/02B/02G) VERSION
PB04
K VERSION
J021
PB04
J022
PT04(K)
010G
010G
003D
001D
003D
003D
5128 3x25(B)
5128 3x8(M)
PB04
027G
5110 3x6(M)
5128 3x8(M)
910G
5128 3x8(M)
W001
J053
5128 3x8(M)
901G
5128 3x8(M)
P104
P304
035G
5128 3x8(M)
005L
5128 3x8(M)
003L
007L
5128 3x10(M)
5128 3x8(M)
L001
001L
002L
5128 3x8(M)
PV04
PU04
5128 3x8(M)
5128 3x8(M)
035B
036B
020B
5128 3x8(M)
5128 3x8(M)
004B
009B
006D
030B
026B
PW04
005B
006D
003B
007B
5128 3x8(M)
008B
006B
025B
024B
5128 3x8(M)
002B
5128 3x8(M)
050G
5128 3x8(M)
PE04
5128 3x8(M)
PG04
019B
5128 3x8(M)
5128 3x8(M)
5128 3x8(M)
5128 3x8(M)
015G
001G
004G
5128 3x8(M)
005G
5128 3x8(M)
Z004

MC-Service

[U] : for U. S. A.
[K] : for Far East

POS.NO	VERSION	PART NO. (FOR EUROPE)	DESCRIPTION	PART NO. (FOR U / K)
002B	/02B/ U/ K	4822 464 70618	Chassis, Front Mold (BLACK)	183J105020
	/02G/ K	4822 464 70625	Chassis, Front Mold (GOLD)	183J105120
003B	/02B/ U/ K	4822 426 51684	Front Panel (BLACK)	183J248010
	/02G/ K	4822 426 51701	Front Panel (GOLD)	183J248110
005B	/02B/ U/ K	4822 410 62848	Button, preset (BLACK)	183J270010
	/02G/ K	4822 410 62878	Button, preset (GOLD)	183J270110
006B	/02B/ U/ K	4822 410 62849	Button, Tuning (BLACK)	183J270020
	/02G/ K	4822 410 62879	Button, Tuning (GOLD)	183J270120
007B	/02B/ U/ K	4822 410 62851	Button, Surround (BLACK)	183J270030
	/02G/ K	4822 410 62881	Button, Surround (GOLD)	183J270130
008B	/02B/ U/ K	4822 410 62852	Button, Function (BLACK)	183J270040
	/02G/ K	4822 410 62882	Button, Function (GOLD)	183J270140
009B		4822 450 62137	Window	183J158010
024B	/02B/ U/ K	4822 413 41679	Knob, Volume	063J154080
	/02G/ K	4822 413 41683	Knob, Volume	063J154090
025B	/02B/ U/ K	4822 413 41678	Knob, Tone / Balance	025J154080
	/02G/ K	4822 413 41682	Knob, Tone / Balance	025J154090
026B	/02B/ U/ K	4822 410 60343	Button, Bass EQ	058J270030
	/02G/ K	4822 410 60334	Button, Bass EQ	058J270130
035B		4822 256 92097	Holder, FL	183J270020
036B		4822 459 10942	Sticker, FL	056J122020
003D		4822 502 12511	B.T. Screw (W / W) M3 x 8	51260308M0
004G		4822 462 42045	Leg, Front	183J057010
005G		4822 462 42048	Leg, Rear	183J057110
010G		4822 502 12511	B.T. Screw (W / W) M3 x 8	51260308M0
910G		4822 532 60948	Bushing, AC Cord	450H259010
007L		4822 502 13851	B.T. Screw (W / W) M3 x 15	51260315M0
⚠J021	K		Voltage Selector	BY05080060
⚠J022	K		Slide Switch, Voltage Selector	SS02021290
J053		4822 290 40297	Terminal, GND	YL03010280
⚠L001	U		Power Transformer	TS18626030
	/02B/ 02G	4822 146 21761	Power Transformer	TS18626040
	K		Power Transformer	TS18626050
Z001	U		FM Ext. Antenna	ZA02000070
Z001	/02B / 02G /K	4822 303 50079	FM Ext. Antenna	ZA01000010
Z003		4822 157 63083	Loop Antenna, LA-700HB	LA00055010
Z004		4822 218 10525	Remote Control	ZK183J0010
001T	U/ K		User Manual	183J851250
	/02B/ 02G	4822 736 21885	User Manual	183J851310

5. TEST EQUIPMENT REQUIRED FOR SERVICING

This table lists the test equipment required for servicing.

Item	Use
Distortion Analyzer	Distortion measurements
Audio Oscillator	Sinewave and squarewave signal source
ACVTVM	Voltage measurements (AC)
Oscilloscope	Waveform analysis and trouble shooting and ASO alignment
Circuit Tester	Trouble Shooting
DCVTVM	Voltage measurements (DC)
AC Wattmeter	Monitors primary power to amplifier
Line Voltmeter	Monitors potential of primary power to amplifier
Variable Autotransformer	Adjust level of primary power to amplifier
Shorting Plug	Shorts amplifier input to eliminate noise pickup

6. IDLING CURRENT ADJUSTMENT

(1) Before switching the power ON, set the Master Volume control to the minimum position and the Balance and Tone controls to the center positions. Then, rotate the semi-fixed resistors R719 (L CH) and R720 (R CH) on the PC board PV04 fully clockwise.

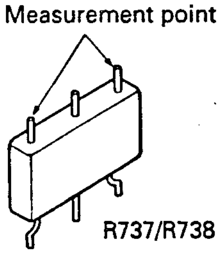
(2) Connect a digital voltmeter, set for the DC voltage input to the pertinent test points (the marked ones of R737-R738) on the PC board PV04. (Positive: Left side, Negative: Right side)

(3) After the completion of the above setup. Switch the power ON and adjust the semi-fixed resistors R719 (L CH) and R720 (R CH) on the PC board PV04 according to the reading of the digital voltmeter. The setting values are 7 mV (19 mA) of the both channels.

Please refer to the table below.

Power ON

30 sec. ~ 1 min.	4 mV
1 ~ 2 min. later	5 mV
More than 5 min.	7 mV



7. SERVICE PROGRAM

1. T.R POINT ME (tracking point memory) mode.
From power OFF (stand-by mode), when the POWER switch is pressed ON while pressing the MEMO and PRESET DOWN key, the T.R POINT ME mode is called. Frequencies to be memorized are as follows.

	P1	P2	P3	P4	P5	P6	P7	P8
FM	90.0 MHz	98.0 MHz	106.0 MHz	87.5 MHz				
AM					603 kHz	999 kHz	1404 kHz	173 kHz

	P9	P10	P11	P12-P30	
FM					
AM	209 kHz	272 kHz	152 kHz	531 kHz	

8. TUNER ALIGNMENT PROCEDURES

1. When you adjust a set, use a signal generator with a counter with which you can correctly read frequencies, or connect a counter to a signal generator with a counter terminal for both AM and FM.
2. As a rule, use a band-pass filter (B.P.F 200-15 kHz) designated by IHF in adjustment and measurement of FM.
   Be sure to use a filter especially in adjustment of STEREO DISTORTION and SEPARATION. (Attenuation at 19 kHz is to be 30 dB at least.)
3. The controller (QU01) used in this set has a function to preset and memorize the frequencies of guard and tracking point to be used in adjustment and measurement.

- Before alignment, connect a dummy resistor of 47 kohms to the tape out terminal.

4. FM Alignment Procedures

(Function switch at "FM" position and MODE switch at "AUTO STEREO" position)

- **FM RF Alignment**

Step	Signal Source Connection	Signal Frequency	Indicator Connection	Digital Readout Frequency Setting	Adjust
1	FM signal generator to FM antenna terminal. Adjust the RF signal output so that slight noise occurs at the upper and lower sides of the output waveform.	98.0 MHz	AC VTVM to L- or R-channel output (TAPE OUT)	98.0 MHz (P2)	Front end IFT for maximum output and minimum distortion.
2	FM signal generator 500 µV output to FM antenna terminal (75-ohm). Modulation 1 kHz 53.3% (40 kHz)	98.0 MHz	Distortion meter to L- or R-channel output (TAPE OUT)	98.0 MHz (P2)	L201 core fore minimum distortion.

- **FM IF Alignment**

(Function switch at "FM" position and MODE switch at "AUTO STEREO" position)

Step	Signal Source Connection	Signal Frequency	Indicator Connection	Digital Readout Frequency Setting	Adjust
1	FM signal generator 500 µV output modulated by MPX signal generator to FM antenna terminal (75-ohm). Modulation level: IHF 53.3% (40 kHz) +8% pilot dev.	Stereo L-channel (1,000 Hz)	VTVM to L-channel output (TAPE OUT L channel)	98.0 MHz (P2)	Front end IFT for minimum distortion.
2		Stereo R-channel (1,000 Hz)	VTVM to R-channel output (TAPE OUT R channel)		

- **Muting Level Alignment**

(Function switch at "FM" position and MODE switch at "AUTO STEREO" position)

Step	Signal Source Connection	Signal Frequency	Indicator Connection	Digital Readout Frequency Setting	Adjust
1	FM signal generator 6.3 µV output to FM antenna terminal (75-ohm)	98.0 MHz		98.0 MHz (P2)	R212 to a point at which shows "tuned."

- **Multiplex Alignment**

(Function switch at "FM" position and MODE switch at "AUTO STEREO" position)

Step	Signal Source Connection	Signal Frequency	Indicator Connection	Digital Readout Frequency Setting	Adjust
1	FM signal generator 500 µV output modulated by MPX signal generator to FM antenna terminal (75-ohm) Modulation level: IHF 53.3% (40 kHz) +8% pilot dev.	Stereo L-channel (1,000 Hz)	VTVM to R-channel output (TAPE OUT R channel)	98.0 MHz (P2)	R211 so that channel separation is identical between both channels.
2		Stereo R-channel (1,000 Hz)	VTVM to L-channel output (TAPE OUT L channel)		
3	Repeat steps 1 and 2.				

5. AM Alignment Procedures
(Function switch at "AM" position)

- **AM IF Alignment**

Step	Signal Source Connection	Signal Frequency	Indicator Connection	Digital Readout Frequency Setting	Adjust
1	Sweep generator to AM antenna terminal	450 kHz	AC VTVM to L- or R-channel output (TAPE OUT)	—	LA06 Maximun and symmetrical waveform.

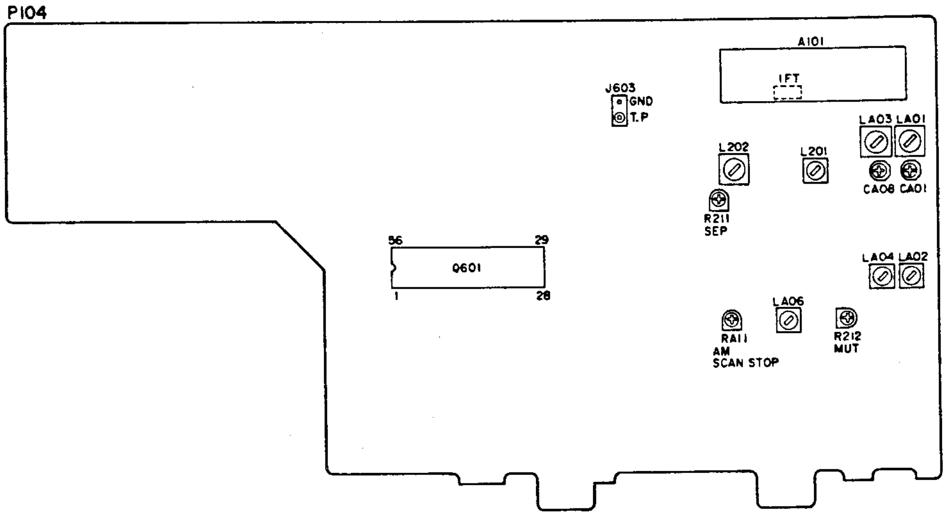
- **AM RF Alignment**

Step	Signal Source Connection	Signal Frequency	Indicator Connection	Digital Readout Frequency Setting	Adjust
1	AM signal generator to AM loop antenna in a test loop	(MW) 603 kHz (LW) 173 kHz	VTVM to L- or R-channel output (TAPE OUT)	(MW) 603 kHz (P5) (LW) 173 kHz (P8)	(MW) LA01 for maximum output. (LW) LA03 for maximum output.
2		(MW) 1404 kHz (LW) 272 kHz		(MW) 1404 kHz (P7) (LW) 272 kHz (P10)	(MW) CA01 for maximum output. (LW) CA08 for maximum output.
3	Repeat steps 1 and 2 until sensitivity is maximized.				

- **AM Auto Stop Alignment**
(Function switch at "AM" position)

Step	Signal Source Connection	Signal Frequency	Indicator Connection	Digital Readout Frequency Setting	Adjust
1	RF generator to AM loop antenna in a test loop (500 µV/m)	999 kHz	—	999 kHz (P6)	RA11 so that shows "TUNED" on the display.

9. ALIGNMENT AND TEST POINT



10. CIRCUIT DESCRIPTION

1. Input Selector

- Input selector
  The function of this circuit is to select between the components connected to the rear panel. The circuit uses an LC7821 IC (QV01), which is serially controlled by the microprocessor (QU01).

2. Surround Block

- The surround block consists of a buffer amplifier, phase shifter, Dolby Pro Logic decoder and its controller, and digital delay and surround mode switches.
- Buffer amplifier
  The stereo signal is first input into this buffer amplifier (QF01), which provides a 0 dB gain at all frequencies. After passing through the amplifier, the signal is distributed to the various blocks.
- Phase shifter and adder
  Here the phase of the signal from low range to high range frequencies is shifted. First, the L/R signals are input to the QM02-2 and the L-R (phase difference component) signal is extracted. This L-R signal passes through the phase shifter (QM03, QM04) and then enters the matrix circuit (QM01). Here the L-R signal is applied in reverse phase to the L signal and in same phase to the R signal. These signals then become the front L and R signals for the MATRIX and HALL surround modes. The adder (QM02-1) produces an L+R signal which is used as the surround signal in the HALL surround mode and as the L channel signal in SIMULATED STEREO mode.
- Dolby Pro Logic decoder
  This circuit uses a Pro Logic decoder to decode a Dolby-encoded signal into four signals for the front left, front right, center and surround channels. The IC used is an NJM2177L (Q601). This circuit operates together with center mode control.
  This IC has 2-channel and 3-channel modes in addition to the Dolby Pro Logic 4-channel mode, but in this unit the IC is used for 4-channel operation only. (See the Q601 Function Table.) Also, the center mode is controlled by the NJU3711 (Q603) and TC9214P (Q604).

The signal output from the buffer amplifier (QF01) is input to the L and R input pins of the Dolby Pro Logic decoder (Q601, pins 15 and 22). The front L and R channel signals decoded here are then output from pins 32 and 33 of Q601 and input to the surround mode selector (QM05). These signals are then output as the front L and R channel signals whenever the unit is set to Dolby surround mode. In the same way, the center signal is output from pin 38 of Q601 and input to the CENTER volume (QG02).

The surround signal is output from pin 39 of Q601, input to the surround mode selector (QM05), and then sent to the digital delay circuit (Q602). After the signal is applied with a delay in this circuit, it is returned to the Q601 and input to the Dolby B decoder circuit. The signal is then output from pin 39 of Q601 as the final surround signal. After that, the signal passes through QM05 and enters the SURROUND volume (QG02).

There are three center modes—NORMAL, PHANTOM and WIDE. Control of these modes is carried out by the TC9214P (Q604), which is in turn controlled by the port expander NJU3711 (Q603). The center mode control signal from the microprocessor is input as serial data from pins 43, 46 and 47 of QU01 to pins 8, 9 and 10 of Q603 to set each of Q603's ports to H or L. The control pins of the analog switch (Q604) connected to these ports turn the internal switches ON/OFF to control the Q601's center mode. (See the Q601 Function Table.) When the center mode is set to NORMAL, the center channel signal's low-frequency component is output to the front L and R channels. In PHANTOM mode, since no center speaker is used, the entire center channel signal is distributed to the front L and R channels. The Q603, in addition to controlling the center mode, also carries out control of the Q601 noise sequencer and speaker system 1 and 2. The noise sequencer functions to generate the signal used to adjust the balance of each channel in Dolby Pro Logic mode. When the TEST TONE switch is pressed ON, the noise sequencer outputs pink noise to each channel in sequence at 1.5-second intervals in the order: L → CENTER → R → SURROUND → L. (See the Q601 Function Table.)

NJM2177L (Q601) Function Table

NOISE SEQUENCER

PIN NAME	NOISE-CNT-E	NOISE-CNT-A	NOISE-CNT-B
PIN No.	PIN 23	PIN 24	PIN 25
SIGNAL SELECT	H	X	X
NOISE L	L	L	L
NOISE C	L	L	H
NOISE R	L	H	L
NOISE S	L	H	H

OPERATION MODE

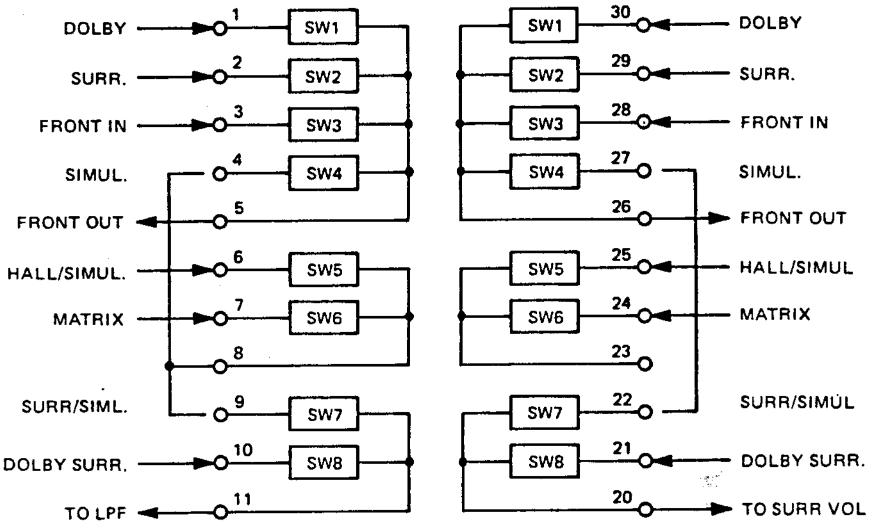
PIN NAME	MODE-CNT	
PIN No.	PIN 31	Note
2CH (Lt, Rt, S')	L	S' = Lt-Rt or NOISE
3CH (L, C, R, S')	High Z	S' = Lt-Rt or NOISE
4CH (L, C, R, S', S)	H	

CENTER MODE

PIN NAME	CENTER-CNT	CENTER-MODE
PIN No.	PIN 30	PIN 36
CENTER OFF	L	X
NORMAL	H	0.22 μF
PHANTOM	H	OPEN
WIDEBAND	H	10 μF

- Digital delay
  This circuit uses the NJU9701 (Q602) to add a time delay to the surround channel signal when a surround mode is selected, and is controlled by the microprocessor.
  10 kHz active filters (L.P.F.) are placed on both the input side and output side of the delay circuit. Each filter has a gain of -9.4 dB and 4.4 dB. The delay times used for the various modes are as follows:
  DOLBY: 15 ~ 30 ms, MATRIX/HALL/SIMULATED:
  2 ~ 33 ms.
  Initial delay settings are as follows:
  DOLBY/MATRIX/HALL: 20 ms, SIMULATED:
  10 ms

- Surround mode selector
  The LC7821 (QM05) is used for the surround mode selector, which switches the surround modes in the following sequence:
  OFF → DOLBY → MATRIX → HALL → SIMULATED


DOLBY
SURR.
FRONT IN
SIMUL.
FRONT OUT
HALL/SIMUL.
MATRIX
SURR/SIML.
DOLBY SURR.
TO LPF
1
2
3
4
5
6
7
8
9
10
11
SW1
SW2
SW3
SW4
SW5
SW6
SW7
SW8
SW1
SW2
SW3
SW4
SW5
SW6
SW7
SW8
30
29
28
27
26
25
24
23
22
21
20
DOLBY
SURR.
FRONT IN
SIMUL.
FRONT OUT
HALL/SIMUL
MATRIX
SURR/SIMUL
DOLBY SURR.
TO SURR VOL

LC7821 (QM05) Function Table

SURROUND SELECTOR	SWITCH No.							
	1	2	3	4	5	6	7	8
OFF	0	0	1	0	X	X	X	X
DOLBY	1	0	0	0	0	0	0	1
MATRIX	0	1	0	0	0	1	1	0
HALL	0	1	0	0	1	0	1	0
SIMULATED STEREO	0	0	0	1	1	0	1	0

0 = SWITCH OFF
1 = SWITCH ON
X = DON'T CARE

3. Master Volume

- The master volume (RG01) is a motor-driven quadruple potentiometer for controlling the volume of the front left, front right, center and surround channels. Control of the motor is carried out by the LB1641 (QD01). QD01 is a motor drive IC with pins 5 and 6 used for input and pins 2 and 10 used for output.

LB1641 (QD01) Function Table

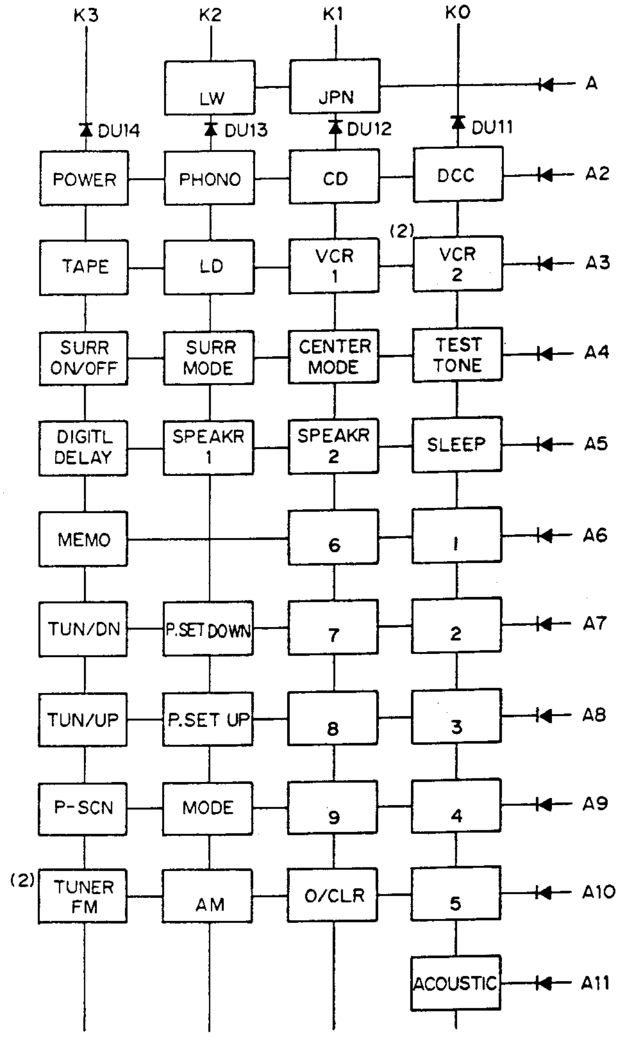
Volume	Input		Output	
	6	5	2	10
UP	L	H	H	L
DOWN	H	L	L	H
STOP	L	L	L	L

QD01 is controlled by the NJU3711 (Q603). Q603 is controlled by serial data from the microprocessor.

4. Center/Surround Volume

- Electronic potentiometers (TC9213P) are used for the center channel and surround channel volume (QG02). One potentiometer consists of an element for varying the volume in 10 dB steps and an element for varying the volume in 1 dB steps. Buffer amplifiers (QG01, NJM4558DD) are located between the elements.

Key Matrix


K3
K2
K1
K0
LW
JPN
A
DU14
DU13
DU12
DU11
POWER
PHONO
CD
DCC
A2
(2)
TAPE
LD
VCR 1
VCR 2
A3
SURR ON/OFF
SURR MODE
CENTER MODE
TEST TONE
A4
DIGITL DELAY
SPEAKR 1
SPEAKR 2
SLEEP
A5
MEMO
6
1
A6
TUN/DN
P.SET DOWN
7
2
A7
TUN/UP
P.SET UP
8
3
A8
P-SCN
MODE
9
4
A9
(2)
TUNER FM
AM
0/CLR
5
A10
ACOUSTIC
A11

The two keys of LW JPN are lock switches for use in initial setting.

Description of keys

A: Diode switches for initial setting

LW : Tuner band select switch. When this key is ON, the AM band is unconditionally set to two bands. The indications of these bands on the FL display are MW and LW. This key is valid only in the receiver mode.

JPN : Tuner destination select switch. When this key is ON, the set is unconditionally set to the Japanese version. This key is valid only in the receiver mode.

- Initial setup recall operation: The initial setup is recalled when the POWER key is pressed or when HOLD is changed from LO to HI.

B: Momentary and lock switches (These switches are basically momentary switches unless otherwise specified.)

1 ~ 9 : Keys for use in inputting numbers in the preset number entry, clock setting or timer setting operation. In the timer setting operation, "1" is for to select ONCE and "2" is for to select DAILY.

0/CLR : Key for use in inputting "0" as well as clearing data in various modes.

SLEEP : Sleep timer mode key for to set or turn ON/OFF the sleep timer.

TUNER FM : Tuner/Band FM setting key. When this key is pressed, the TUNER input function and the FM BAND will be selected. In the amplifier mode, this key functions simply as the TUNER key.

TUN/UP : Frequency up (increase) key for in the tuner mode. Each press of the key increases the frequency by 1 step, and holding the key depressed increases it successively. This key is invalid in other modes than the tuner mode, such as the CD and LD modes.

TUN/DN : Frequency down (decrease) key with the opposite functions to the TUN/UP key above.

AM : Tuner/Band AM setting key. When LW is selected, this key selects the MW or LW band in an alternate cycle. If this key is pressed while listening to FM or playing other source, the band which was last received will be recalled (last memory), and further press of the key switches the band.

P-SCN : Key for use in automatic scanning of tuner preset channels. When this key is pressed, FL segments "PRESET SCAN" light, the set enters the preset scan mode and the preset channels will be scanned. This key is invalid in the amplifier mode.

MEMO : Key for use in setting the preset memory, timer, sleep timer, clock, etc. As the operation differs depending on the modes, refer to the description of each operation for details.

POWER : Key for turning the power of the set ON/OFF. This is a non-lock switch which turns power ON/OFF in an alternate cycle. When the power is OFF, all of the output ports except for some special ports are in the low level, but specified input ports and the remote control input ports are accessible. The details will be described in the description of each item.

P.SET UP : Preset channel up (increase) key for in the tuner mode. Pressing this key while a preset number is displayed increases the number, and pressing this key while it is not displayed recalls P1 or the smallest preset number. This key allows to select a preset number within the same band (in FM band, it can recall only the FM preset numbers).

P.SET DOWN : Opposite operations to the above occurs.

SURR ON/OFF : Surround mode ON/OFF key. Press to turn ON/OFF in an alternate cycle. The initial condition is OFF.

SURR MODE : Surround mode select key. The initial condition is PRO LOGIC, and further press of the key switches to MATRIX, HALL, SIMULATED STEREO and to PRO LOGIC again.

CENTER MODE : Center mode setting key for use in PRO LOGIC mode. The initial condition is NORMAL, and further press of the key switches to WIDE, PHANTOM and NORMAL again.

SPEAKR 1 SPEAKR 2 : Speaker system select keys. The initial conditions are OFF (with ports LO), and each press switches ON/OFF in an alternate cycle. These keys are controlled by NJU3711D, and the corresponding ports are turned ON/OFF accordingly. The conditions of these keys are also backed up by the last memory function.

TEST TONE : When the surround mode is PRO LOGIC, this key puts the Surround IC to the test tone mode. The actual control is performed by the port expander IC (NJU3711D).

PHONO CD VCR 1 VCR 2 TAPE DCC LD : Input selector keys, which output the corresponding serial data.

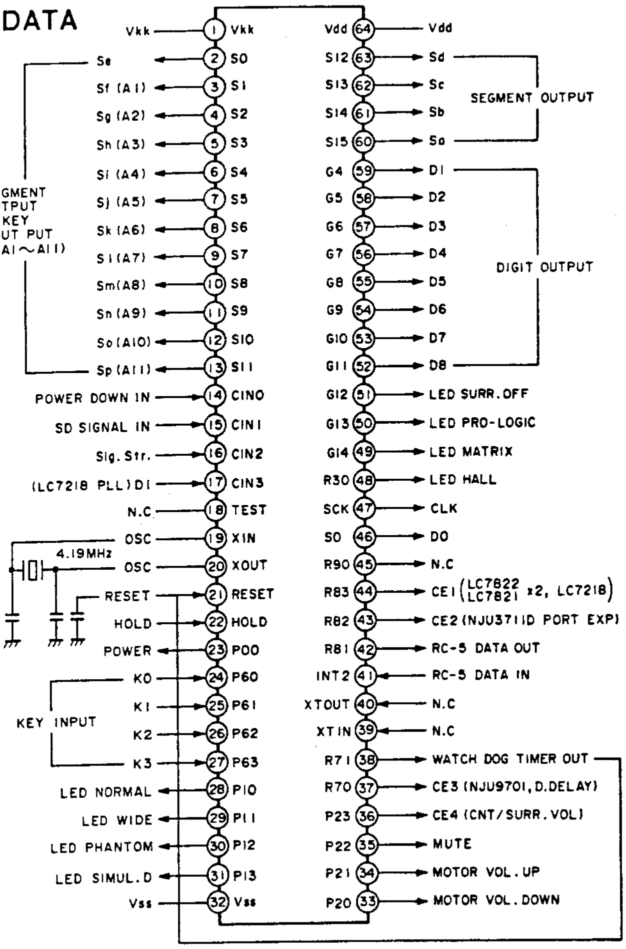
MODE : FM stereo/mono select key. The initial condition is AUTO STEREO. The switching is based on the serial data sent to the PLL. The switching operation is cyclic. FL indicator "AUTO" lights in the AUTO STEREO mode.

DIGITL DELAY : When the surround mode is ON, this key sets the delay time for each surround mode.

ACOUSTIC : The combinations of the surround modes, center modes and volume levels can be stored in five memories and recalled in the acoustic mode.

* The functions of the keys are as described above. Except in the special case (service mode), if more than one key is pressed, the key pressed first is given the priority.

11. MICROPROCESSOR DATA


Vkk
1 Vkk
Se
2 S0
Sf (A1)
3 S1
Sg (A2)
4 S2
Sh (A3)
5 S3
Si (A4)
6 S4
Sj (A5)
7 S5
Sk (A6)
8 S6
Sl (A7)
9 S7
Sm (A8)
10 S8
Sn (A9)
11 S9
So (A10)
12 S10
Sp (A11)
13 S11
SEGMENT OUTPUT /KEY OUT PUT (A1～A11)
POWER DOWN IN
14 CIN0
SD SIGNAL IN
15 CIN1
Sig. Str.
16 CIN2
(LC7218 PLL) DI
17 CIN3
N.C
18 TEST
OSC
19 XIN
4.19MHz
OSC
20 XOUT
RESET
21 RESET
HOLD
22 HOLD
POWER
23 P00
K0
24 P60
K1
25 P61
KEY INPUT
K2
26 P62
K3
27 P63
LED NORMAL
28 P10
LED WIDE
29 P11
LED PHANTOM
30 P12
LED SIMUL.D
31 P13
Vss
32 Vss
Vdd 64
Vdd
S12 63
Sd
S13 62
Sc
SEGMENT OUTPUT
S14 61
Sb
S15 60
Sa
G4 59
D1
G5 58
D2
G6 57
D3
G7 56
D4
DIGIT OUTPUT
G8 55
D5
G9 54
D6
G10 53
D7
G11 52
D8
G12 51
LED SURR.OFF
G13 50
LED PRO-LOGIC
G14 49
LED MATRIX
R30 48
LED HALL
SCK 47
CLK
S0 46
DO
R90 45
N.C
R83 44
CE1 (LC7822 LC7821 x2, LC7218)
R82 43
CE2 (NJU3711D PORT EXP)
R81 42
RC-5 DATA OUT
INT2 41
RC-5 DATA IN
XTOUT 40
N.C
XTIN 39
N.C
R71 38
WATCH DOG TIMER OUT
R70 37
CE3 (NJU9701, D.DELAY)
P23 36
CE4 (CNT/SURR.VOL)
P22 35
MUTE
P21 34
MOTOR VOL.UP
P20 33
MOTOR VOL.DOWN

Pin Nbr.	Pin Name	I/O	Active	Function	Pin Nbr.	Pin Name	I/O	Active	Function
1	Vkk	—	—	-35V (FL Display Drive)	33	P20 (VR DOWN)	O	H	M. Volume Control
2	Se (S0)	O	H	FL e-segment	34	P21 (VR UP)	O	H	M. Volume Control
3	Sf (S1)	O	H	FL f-segment/Key Switch (A1)	35	P22 (MUTE)	O	H	Mute Output
4	Sg (S2)	O	H	FL g-segment/Key Switch (A2)	36	P23 (CE4)	O	H/L	Center/Surround Volume Chip Enable
5	Sh (S3)	O	H	FL h-segment/Key Switch (A3)	37	R70 (CE3)	O	L	Digital Delay Chip Enable
6	Si (S4)	O	H	FL i-segment/Key Switch (A4)	38	R71 (WTO)	O	L	Watch-Dog Timer
7	Sj (S5)	O	H	FL j-segment/Key Switch (A5)	39	R72 (XTAL)	—	—	N.C
8	Sk (S6)	O	H	FL k-segment/Key Switch (A6)	40	R73 (XTAL)	—	—	
9	Sl (S7)	O	H	FL l-segment/Key Switch (A7)	41	R80 (RC-5 IN)	I	L	Remote Control (RC-5) Input
10	Sm (S8)	O	H	FL m-segment/Key Switch (A8)	42	R81 (RC-5 OUT)	O	H	Remote Control (RC-5) Output
11	Sn (S9)	O	H	FL n-segment/Key Switch (A9)	43	R82 (CE2)	O	L	Port Expander Chip Enable
12	So (S10)	O	H	FL o-segment/Key Switch (A10)	44	R83 (CE1)	O	H	Analog Switch/PLL Chip Enable
13	Sp (S11)	O	H	FL p-segment/Key Switch (A11)	45	R90 (N.C)	—	—	N.C
14	POW. DOWN	I	L	Power Down: L	46	SO (DO)	O	H	Serial Data
15	SD IN	I	L	SD Signal Input	47	SCK (CLK)	O	H	Serial Clock
16	SIG. IN	I	H	Signal Strength Indicator	48	R30 (LED HALL)	O	H	Surround Mode
17	DI	I	H	Serial Data Input	49	G14 (LED MTRX)	O	H	Surround Mode
18	TEST	—	—	N.C	50	G13 (LED PRO)	O	H	Surround Mode
19	X IN	—	—	Clock (4.19 MHz)	51	G12 (LED OFF)	O	H	Surround Mode
20	X OUT	—	—		52	G11 (D8)	O	H	Digit Output D8 Digit
21	RESET	I	L	Reset and Watch-Dog Timer	53	G10 (D7)	O	H	Digit Output D7 Digit
22	HOLD	I	L	Hold Mode	54	G9 (D6)	O	H	Digit Output D6 Digit
23	P00 (POWER)	O	H	Relay Drive Output	55	G8 (D5)	O	H	Digit Output D5 Digit
24	P60 (K0)	I	H	Key Switch	56	G7 (D4)	O	H	Digit Output D4 Digit
25	P61 (K1)	I	H		57	G6 (D3)	O	H	Digit Output D3 Digit
26	P62 (K2)	I	H		58	G5 (D2)	O	H	Digit Output D2 Digit
27	P63 (K3)	I	H		59	G4 (D1)	O	H	Digit Output D1 Digit
28	P10 (LED NORM)	O	L	Cent. Mode: Normal	60	S15 (Sa)	O	H	FL Display a-segment
29	P11 (LED WIDE)	O	L	Cent. Mode: Wide	61	S14 (Sb)	O	H	FL Display b-segment
30	P12 (LED PHTM)	O	L	Cent. Mode: Phantom	62	S13 (Sc)	O	H	FL Display c-segment
31	P13 (LED SIML)	O	L	Surr. Mode: Simulated	63	S12 (Sd)	O	H	FL Display d-segment
32	Vss	—	—	GND	64	Vdd	—	—	Vdd

12. ELECTRICAL PARTS LIST

ASSIGNMENT OF COMMON PARTS CODES.

RESISTOR

R＊＊＊ : (1) GD05 x x x 140. Carbon film fixed resistor. ± 5 % 1/4W
R＊＊＊ : (2) GD05 x x x 160. Carbon film fixed resistor. ± 5 % 1/6W
① —— Resistance value

Examples ;
① Resistance value
0.1Ω...001　10Ω...100　1kΩ...102　100kΩ...104
0.5Ω...005　18Ω...180　2.7kΩ...272　680kΩ...684
1Ω...010　100Ω...101　10kΩ...103　1MΩ...105
6.8Ω...068　390Ω...391　22kΩ...223　4.7MΩ...475

(Note) Please distinguish 1/4W from 1/6W by the shape of parts used actually.

C＊＊＊ : CERAMIC CAP.
(1) DD1x x x x 370. Ceramic capacitor
Disc type
Temp.coeff.P350~N1000,50V
① Tolerance
② Capacity value

Examples
① Tolerance (Capacity deviation)
± 0.25pF ... 0
± 0.5pF ... 1
± 5 % ... 5

＊ Tolerance of COMMON PARTS handled here are as follows :
0.5pF~ 5pF...± 0.25pF
6pF~ 10pF...± 0.5pF
12pF~ 560pF...± 5 %

② Capacity value
0.5pF...005　3pF...030　100pF...101
1pF...010　10pF...100　220pF...221
1.5pF...015　47pF...470　560pF...561

C＊＊＊ : CERAMIC CAP.
(1) DK16 x x x 300. High dielectric constant ceramic capacitor
Disc type
Temp.chara. 2B4, 50V
① Capacity value

Examples
② Capacity value
100pF...101　1000pF...102　10000pF...103
470pF...471　2200pF...222

C＊＊＊ : ELECTROLY CAP.(⫩). FILM CAP.(⊣⊢)
(1) EA x x x x x x 10. Electrolytic capacitor
One-way lead type. Tolerance ± 20 %
① Capacity value
② Working voltage

Examples
① Capacity value
0.1μF...104　4.7μF...475　100μF...107
0.33μF...334　10μF...106　330μF...337
1μF...105　22μF...226　1100μF...118
2200μF...228

② Working voltage
6.3V...006　25V...025
10V...010　35V...035
16V...016　50V...050

(2) DF15 x x x 350. Plastic film capacitor
One-way type. Mylar ± 5 % 50V
① Capacity value

Examples
① Capacity value
0.001μF(1000pF)...102　0.1μF...104
0.0018μF...........182　0.56μF...564
0.01μF...........103　1μF...105
0.015μF...........153

NOTE : The above CODES (R＊＊＊, R＊＊＊, C＊＊＊, C＊＊＊ and C＊＊＊) are omitted on the schematic diagram in some case.
On the occasion, be confirmed the common parts on the parts list.

NOTE ON SAFETY FOR FUSIBLE RESISTOR:
The suppliers and their type numbers of fusible resistors are as follows;

1. KOA Corporation

Part No.		Type No.	Description
NH05 x x x 140	→	RF25S x x x x ΩJ	(± 5% 1/4W)
NH05 x x x 120	→	RF50S x x x x ΩJ	(± 5% 1/2W)
NH85 x x x 110	→	RF73B2A x x x x ΩJ	(± 5% 1/10W)
NH95 x x x 140	→	RF73B2E x x x x ΩJ	(± 5% 1/4W)

＊ Resistance value　Resistance value(0.1 - 10kΩ)

2. Matsushita Electronic Components Co., Ltd

Part No.		Type No.	Description
NF05 x x x 140 RF05 x x x 140	→	ERD - 2FCJ x x x	(± 5% 1/4W)
NF02 x x x 140 RF02 x x x 140	→	ERD - 2FCG x x x	(± 2% 1/4W)

＊ Resistance value　＊ Resistance value

Examples;
＊ Resistance value

0.1Ω.....001　10Ω.....100　1kΩ.....102　100kΩ.......104
0.5Ω.....005　18Ω.....180　2.7kΩ.....272　680kΩ.......684
1Ω.....010　100Ω.....101　10kΩ.....103　1MΩ.......105
6.8Ω.....068　390Ω.....391　22kΩ.....223　4.7MΩ.......475

[U] : for U. S. A.
[K] : for Far East

POS.NO	VERSION	PART NO. (FOR EUROPE)	DESCRIPTION	PART NO. (FOR U / K)
			PB04-BACK UP TRANF / OUTLET CIRCUIT BOARD	
PB04			BACK UP TRANSF / OUTLET PCB	WA183J2030
			PB04-CAPACITORS	
CB01		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
CB03		4822 122 33276	Ceramic 0.01μF ±20%	DK17103840
CB04	/02B/ 02G	4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
CB05	/02B/ 02G	4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
			PB04-CAPACITORS (COMMON)	
C***			Electrolytic capacitor, ±20% : CB02	
			PB04-RESISTORS	
RB03	U		2.2MΩ ±10% 1/2W	RC10225920
RB04		4822 053 11331	330Ω ±5% 2W	GA05331020
			PB04-RESISTORS (COMMON)	
R***			Carbon film fixed resistor, ±5% 1/6W : RB01, RB02	
			PB04-SEMICONDUCTORS	
DB01		4822 130 80839	Diode S5688G	HD20029050
DB02		4822 130 80839	Diode S5688G	HD20029050
DB03		4822 130 80839	Diode S5688G	HD20029050
DB04		4822 130 83395	Zener RD20F B3 20V	HD32001060
QB01		4822 130 42298	Transistor 2SC536SP, etc.	HT30001000
			PB04-MISCELLANEOUS	
▲FB01	/02B/ 02G	4822 253 40166	Fuse T2.5A 250V	FS10250850
	U		Fuse 5.0A 125V	FS10500300
▲JB03	/02B/ 02G	4822 267 31687	Jack, AC Outlet	YJ04002010
	U/ K		Jack, AC Outlet	YJ04002030
▲LB01	U		Power Transformer, Buck-up	TS13516030
	K		Power Transformer, Buck-up	TS13516050
	/02B/ 02G	4822 146 21757	Power Transformer, Buck-up	TS13516090
▲LB02	U	4822 280 20354	Relay	LY10240140
	/02B/ 02G /K	4822 280 80773	Relay	LY10240240
▲SB01	K		Slide Switch	SS0202124R
			PE04--TONE AMP / BALANCE VOLUME CIRCUIT BOARD	
PE04			TONE AMP / BALANCE VOLUME PCB	WA183J3020
			PE04--CAPACITORS	
CD01		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
CD02		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
CE03		4822 124 21894	Elect 10μF 16V	EJ10601610
CE04		4822 124 21894	Elect 10μF 16V	EJ10601610
CE09		4822 124 23056	Elect 47μF 16V	EJ47601610
CE10		4822 124 23056	Elect 47μF 16V	EJ47601610
CE15		4822 124 23055	Elect 22μF 16V	EJ22601610
CE16		4822 124 23055	Elect 22μF 16V	EJ22601610
CE17		4822 124 40786	Elect 2.2μF 50V	EJ22505010
CE18		4822 124 40786	Elect 2.2μF 50V	EJ22505010
CE19		4822 124 21895	Elect 0.22μF 50V	EJ22405010
CE20		4822 124 21895	Elect 0.22μF 50V	EJ22405010
CE25		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
CE26		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
CE27		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
			PE04-CAPACITORS (COMMON)	
C***			High dielectric constant ceramic capacitor, ±10% 50V : CE01, CE02, CE21, CE22	

POS.NO	VERSION	PART NO. (FOR EUROPE)	DESCRIPTION	PART NO. (FOR U/K)
C***			Electrolytic capacitor, ±20% : CE17, CE23, CE24	
C***			Plastic film capacitor, ±5% 50V : CE05~CE08, CE11~CE14	
			PE04-RESISTORS	
RE19		4822 101 21242	10K Ω (E), Variable Bass	RM01030910
RE20		4822 101 21242	10K Ω (E), Variable Treble	RM01030910
RE31		4822 050 21021	100 Ω ±5% 1/4W	GG05101140
RE32		4822 050 21021	100 Ω ±5% 1/4W	GG05101140
RE39		4822 100 12064	100K Ω (MN), Variable Balance	RM01041560
			PE04-RESISTOR (COMMON)	
R***			Carbon film fixed resistor, ±5% 1/6W : RE01~RE18, RE21~RE30, RE33~RE38	
			PE04-SEMICONDUCTORS	
DD01		4822 130 80317	Zener RD5.1JB2 / MTZJ5.1B	HD30511000
QD01		4822 209 30193	IC LB1641	HC10279030
QE01		4822 130 42298	Transistor 2SC536SP, etc.	HT30001000
QE02		4822 130 42298	Transistor 2SC536SP, etc.	HT30001000
QE03		4822 130 61892	Transistor 2SD2144S (U, V)	HT421442A0
QE04		4822 130 61892	Transistor 2SD2144S (U, V)	HT421442A0
QE05		4822 209 73064	IC NJM2068DD	HC10053090
QE06		4822 130 42594	Transistor, Digital DTC144ES	BA20002000
QE07		4822 130 42682	Transistor, Digital DTA144ES	BA10002000
			PE04-MISCELANEOUS .	
SE01		4822 276 13449	Push Switch, Bass EQ	SP02012090
			PG04-MASTER VOLUME CIRCUIT BOARD	
PG04			MASTER VOLUME PCB	WA183J3030
CG71		4822 122 30043	Ceramic Cap. 0.01μF +80% -20% 50V	DK18103310
RG71		4822 100 12065	Variable Resistor 100K Ω (B) x 2, Motor	RY01040220
			PT04-TRANSFORMER CIRCUIT BOARD	
PT04			TRANSFORMER PCB	WA183J3050
FT01	K		Fuse T2.5A 250V	FS10250850
FT02	K		Fuse T2.5A 250V	FS10250850
			PU04-U-PROCESSOR / SWITCH CIRCUIT BOARD	
PU04			U-PROCESSOR / SWITCH PCB	WA183J3010
			PU04-CAPACITORS	
CU01		4822 124 22318	Elect 10μF 16V	EG10601650
CU02		4822 124 23295	Big Elect 0.022F 5.5V	EX22300510
CU03		4822 124 80651	Elect 100μF 6.3V	EG10700650
CU04		4822 122 40586	Ceramic 0.01μF ±20% 16V	DA17103110
CU06		4822 124 80651	Elect 100μF 6.3V	EG10700650
CU07		4822 124 22318	Elect 10μF 16V	EG10601650
CU08		4822 124 80774	Elect 10μF 25V	EG10602550
CU09		4822 122 40586	Ceramic 0.01μF ±20% 16V	DA17103110
CU10		4822 122 40586	Ceramic 0.01μF ±20% 16V	DA17103110
CU11		4822 124 41604	Elect 0.1μF 50V	EG10405010
CU12		4822 124 80651	Elect 100μF 6.3V	EG10700650
			PU04-RESISTORS	
GU01		4822 111 91399	100K Ω x 4, Array	BW05104080
GU02		4822 111 92152	10K Ω x 6, Array	BW05103230
GU03		4822 111 92152	10K Ω x 6, Array	BW05103230
GU04		4822 111 91399	100K Ω x 4, Array	BW05104080

POS.NO	VERSION	PART NO. (FOR EUROPE)	DESCRIPTION	PART NO. (FOR U / K)
			PU04-RESISTORS (COMMON)	
R***			Carbon film fixed resistor, ±5% 1/6W : RU01~RU12	
			PU04-SEMICONDUCTORS	
DU01 ~ DU14		4822 130 33305	Diode 1SS176, etc.	HD20002000
DU17	/ 02B/ 02G	4822 130 33305	Diode 1SS176, etc.	HD20002000
DU19 ~ DU26		4822 130 33305	Diode 1SS176, etc.	HD20002000
DU27 ~ DU31		4822 130 80326	L.E.D. LT3D8B (RED)	HL10062320
DU32		4822 130 81715	L.E.D. LT3K44B (GRN)	HI10095320
DU33		4822 130 80326	L.E.D. LT3D8B (RED)	HI10062320
DU34		4822 130 80326	L.E.D. LT3D8B (RED)	HI10062320
DU35		4822 130 80326	L.E.D. LT3D8B (RED)	HI10062320
DU36		4822 130 33305	Diode 1SS176, etc.	HD20002000
QU01		4822 209 32698	Microprocessor TMP47C1670AN	HU10086050
QU02		4822 209 32697	IC 78LR05L	HC10317030
QU03		4822 214 52009	Photo Unit GP1U58XP	HW10026320
QU04		4822 130 42594	Transistor, Digital DTC144ES	BA20002000
QU05		4822 130 42682	Transistor, Digital DTA144ES	BA10002000
QU06		4822 130 42594	Transistor, Digital DTC144ES	BA20002000
QU07		4822 130 42682	Transistor, Digital DTA144ES	BA10002000
			PU04-MISCELLANEOUS	
SU01 ~ SU35		4822 276 20508	Push Switch	SP01011280
SU51		4822 276 20508	Push Switch, Power / Standby	SP01011280
VU01		4822 130 91278	Display Unit, FIP7JM9	HQ30810060
XU01		4822 242 72194	Ceramic Resonator, 4.19MHz	FQ04194020
			PV04-FUNC / MAIN / SUPP / SPK CIRCUIT BOARD	
PV04			FUNC / MAIN / SUPP / SPK PCB	WA183J1000
			PV04-CAPACITORS	
CN03		4822 124 23055	Elect 22μF 16V	EJ22601610
CN04		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
CN10		4822 124 23053	Elect 1μF 50V	EJ10505010
CN53		4822 124 23055	Elect 22μF 16V	EJ22601610
CV01 ~ CV04		4822 122 40617	Ceramic 0.1μF +80% -20% 50V	DK38104010
CV06		4822 124 21894	Elect 10μF 16V	EJ10601610
CV07		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
CV08		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
C403		4822 124 21894	Elect 10μF 16V	EJ10601610
C404		4822 124 21894	Elect 10μF 16V	EJ10601610
C405		4822 124 23055	Elect 22μF 16V	EJ22601610
C406		4822 124 23055	Elect 22μF 16V	EJ22601610
C413		4822 124 21894	Elect 10μF 16V	EJ10601610
C414		4822 124 21894	Elect 10μF 16V	EJ10601610
C419		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
C420		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
C421		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
C703		4822 124 21894	Elect 10μF 16V	EJ10601610
C704		4822 124 21894	Elect 10μF 16V	EJ10601610
C705		5322 122 32072	Ceramic 33pF ±5% 50V	DD15330300
C706		5322 122 32072	Ceramic 33pF ±5% 50V	DD15330300
C711		4822 126 10797	Ceramic 10pF ±0.5pF 500V	DD11100560
C712		4822 126 10797	Ceramic 10pF ±0.5pF 500V	DD11100560
C713		4822 122 40367	Ceramic 7pF ±0.5pF 50V	DD11070300
C714		4822 122 40367	Ceramic 7pF ±0.5pF 50V	DD11070300
C717 ~ C720		5322 122 32265	Ceramic 100pF ±5% 500V	DD15101560

POS.NO	VERSION	PART NO. (FOR EUROPE)	DESCRIPTION	PART NO. (FOR U/K)
C721 ~ C724		4822 124 21895	Elect 0.22µF 50V	EJ22405010
C726		4822 124 21894	Elect 10µF 16V	EJ10601610
C727		4822 124 80649	Elect 10µF 100V	EJ10610010
C728		4822 124 80649	Elect 10µF 100V	EJ10610010
C741 ~ C744	/02B/02G	4822 122 30043	Ceramic 0.01µF +80% -20% 50V	DK18103310
C753		4822 124 21894	Elect 10µF 16V	EJ10601610
C754		4822 124 21894	Elect 10µF 16V	EJ10601610
C759		4822 122 31188	Ceramic 3pF ±0.25pF 50V	DD10030300
C760		4822 122 31188	Ceramic 3pF ±0.25pF 50V	DD10030300
C761		4822 124 23626	Elect 100µF 63V	EA10706310
C762		4822 124 80649	Elect 10µF 100V	EA10610010
C763		4822 124 23626	Elect 100µF 63V	EA10706310
C764		4822 124 80649	Elect 10µF 100V	EA10610010
C765 ~ C768		4822 124 21895	Elect 0.22µF 50V	EJ22405010
C801		4822 126 12453	Ceramic 0.01µF +80% -20% 500V	DK18103560
▲C802	U/K		Elect 8200µF 56V	EB82805650
	/02B/02G	4822 124 42407	Elect 8200µF 63V	EB82806340
▲C803	U/K		Elect 8200µF 56V	EB82805650
	/02B/02G	4822 124 42407	Elect 8200µF 63V	EB82806340
C804		4822 122 30043	Ceramic 0.01µF +80% -20% 50V	DK18103310
C805		4822 122 30043	Ceramic 0.01µF +80% -20% 50V	DK18103310
C810		4822 124 21894	Elect 10µF 16V	EJ10601610
C811		4822 124 21894	Elect 10µF 16V	EJ10601610
C812		4822 124 21894	Elect 10µF 16V	EJ10601610
C813		4822 124 40786	Elect 2.2µF 50V	EJ22505010
			PV04-CAPACITORS (COMMON)	
$\underline{\text{C***}}$			High dielectric constant ceramic capacitor, ±10% 50V : (CV09~CV29 [/02B/02G]), C401, C402, (C407, C408 [/02B/02G]), C411, C412, C415, C416, C701, C702, C709, C710, C751, C752	
$\overline{\text{C***}}$			Electrolytic capacitor, ±20% : CN05, CN07, C417, C418, C707, C708, C725, C757, C758, C761, C763, C806~C809	
$\overline{\text{C***}}$			Plastic film capacitor, ±5% 50V : C409, C410	
			PV04-RESISTORS	
RN01		4822 052 10102	1K Ω ±5% 1/6W	GG05102160
RN02		4822 052 10102	1K Ω ±5% 1/6W	GG05102160
RN13		4822 052 10109	10 Ω ±5% 1/6W	GG05100160
RN14		4822 052 10109	10 Ω ±5% 1/6W	GG05100160
RN15		4822 052 10109	10 Ω ±5% 1/6W	GG05100160
RN51		4822 052 10102	1K Ω ±5% 1/6W	GG05102160
RN52		4822 052 10102	1K Ω ±5% 1/6W	GG05102160
RN61		4822 052 10109	10 Ω ±5% 1/6W	GG05100160
RV38		4822 111 31001	330 Ω ±5% 1/6W	GG05331160
RV40		4822 111 31001	330 Ω ±5% 1/6W	GG05331160
R417		4822 050 21021	100 Ω ±5% 1/4W	GG05101140
R418		4822 050 21021	100 Ω ±5% 1/4W	GG05101140
R713		4822 050 26809	68 Ω ±5% 1/6W	GG05680160
R714		4822 050 26809	68 Ω ±5% 1/6W	GG05680160
R719		4822 100 11386	1K Ω, Trimming	RA01020780
R720		4822 100 11386	1K Ω, Trimming	RA01020780
R725 ~ R730		4822 050 26809	68 Ω ±5% 1/6W	GG05680160
R731		4822 053 10221	220 Ω ±5% 1W	GA05221010
R732		4822 053 10221	220 Ω ±5% 1W	GA05221010
R733 ~ R736		4822 052 10229	22 Ω ±5% 1/6W	GG05220160
R737		4822 116 82049	0.18 Ω x 2 3W	BZ10182010
R738		4822 116 82049	0.18 Ω x 2 3W	BZ10182010
R739		4822 050 26809	68 Ω ±5% 1/6W	GG05680160
R740		4822 050 26809	68 Ω ±5% 1/6W	GG05680160
R743		4822 053 11109	10 Ω ±5% 2W	GA05100020
R744		4822 053 11109	10 Ω ±5% 2W	GA05100020

POS.NO	VERSION	PART NO. (FOR EUROPE)	DESCRIPTION		PART NO. (FOR U / K)
R745		4822 053 10472	4.7K Ω ±5%	1W	GA05472010
R747		4822 053 11331	330 Ω ±5%	2W	GA05331020
R748		4822 053 11331	330 Ω ±5%	2W	GA05331020
R763		4822 052 10101	100 Ω ±5%	1/6W	GG05101160
R764		4822 052 10101	100 Ω ±5%	1/6W	GG05101160
R771		4822 113 80363	0.22 Ω ±10%	3W	GO10222030
R772		4822 113 80363	0.22 Ω ±10%	3W	GO10222030
R773		4822 053 11109	10 Ω ±5%	2W	GA05100 20
R774		4822 053 11109	10 Ω ±5%	2W	GA05100 20
▲R801		4822 116 60306	1 Ω ±5%	1/2W, Fusible	NH05010120
▲R802		4822 116 60306	1 Ω ±5%	1/2W, Fusible	NH05010120
▲R803		4822 116 60306	1 Ω ±5%	1/2W, Fusible	NH05010120
R805		4822 053 10569	56 Ω ±5%	1W	GA05560010
▲R806		4822 116 60312	4.7 Ω ±5%	1/2W, Fusible	NH05047120
▲R807		4822 117 10204	47 Ω ±5%	1/2W, Fusible	NH05470120
R808		4822 053 11102	100 Ω ±5%	2W	GA05101020
▲R809		4822 116 60312	4.7 Ω ±5%	1/2W, Fusible	NH05047120
			PV04-RESISTORS (COMMON)		
R***			Carbon film fixed resistor, ±5% 1/6W : RN03~RN12, RN17~RN25, RN53~RN60, RN71, RN72, RN73, RV05, RV06, RV09, RV10, RV15, RV16, RV19~RV37, R401~R416, R701~R712, R715~R718, R721~R724, R741, R742, R746, R749, R751~R756, R759~R762, R765, R766, R804, R810, R811		
			PV04-SEMICONDUCTORS		
DN01		4822 130 80837	Diode	HSS81TD	HD20027010
DN02		4822 130 80837	Diode	HSS81TD	HD20027010
DN03		4822 130 33305	Diode	1SS176, etc.	HD20002000
DN04		4822 130 33305	Diode	1SS176, etc.	HD20002000
DN05		4822 130 33305	Diode	1SS176, etc.	HD20002000
DN51		4822 130 80837	Diode	HSS81TD	HD20027010
DN52		4822 130 80837	Diode	HSS81TD	HD20027010
DN53		4822 130 33305	Diode	1SS176, etc.	HD20002000
DN71		4822 126 90007	Varistor	PTH9M04BC222TS	HP00033240
DV02		4822 130 33305	Diode	1SS176, etc.	HD20002000
DV03		4822 130 33305	Diode	1SS176, etc.	HD20002000
D701		4822 130 80273	Zener	RD8.2JB2 / MTZJ8.2C	HD30821000
D702		4822 130 80322	Zener	RD15JB3 / MTZJ15A	HD31501000
D703 ~ D706		4822 130 33305	Diode	1SS176, etc.	HD20002000
D801 ~ D804		4822 130 33864	Varistor	30D-2	HD20003010
▲D805 ~ ▲D811		4822 130 80839	Diode	S5688G	HD20029050
D812		4822 130 80322	Zener	RD15JB3 / MTZJ15A	HD31501000
D813		4822 130 81729	Zener	MTZJ33D	HD33301000
D814		4822 130 80273	Zener	RD8.2JB2 / MTZJ8.2C	HD30821000
QN01		4822 130 43233	Transistor	2SC2240 (GR, BL)	HT322402A0
QN02		4822 130 43233	Transistor	2SC2240 (GR, BL)	HT322402A0
QN03		4822 130 42951	Transistor	2SA970 (GR, BL)	HT109702A0
QN04		4822 130 43312	Transistor	2SC3312 (R, S)	HT333122A0
QN05		4822 130 43312	Transistor	2SC3312 (R, S)	HT333122A0
QN06		4822 209 83312	IC	TA7317P	HC10042050
QN51		4822 130 43233	Transistor	2SC2240 (GR, BL)	HT322402A0
QN52		4822 130 43233	Transistor	2SC2240 (GR, BL)	HT322402A0
QN53		4822 130 42951	Transistor	2SA970 (GR, BL)	HT109702A0
QN71		4822 130 60766	Transistor, Digital	DTA114ES	BA10001000
QN72		4822 130 61892	Transistor	2SD2144S (U, V)	HT421442A0
QV01		4822 209 72748	IC	LC7821	HC10228030
QV02		4822 209 73321	IC	LC7822	HC10241030
QV03		4822 130 42594	Transistor, Digital	DTC144ES	BA20002000
QV04		4822 130 42682	Transistor, Digital	DTA144ES	BA10002000
QV07		4822 130 61892	Transistor	2SD2144S (U, V)	HT421442A0
QV08		4822 130 61892	Transistor	2SD2144S (U, V)	HT421442A0
Q401		4822 209 83631	IC	NJM4558DD	HC10008090

POS.NO	VERSION	PART NO. (FOR EUROPE)	DESCRIPTION	PART NO. (FOR U / K)
⚠ Q701		4822 130 42999	Transistor 2SA1145 (O, Y)	HT111452A0
⚠ Q702		4822 130 42999	Transistor 2SA1145 (O, Y)	HT111452A0
⚠ Q703		4822 130 43283	Transistor 2SC2705 (O, Y)	HT327052A0
⚠ Q704		4822 130 43283	Transistor 2SC2705 (O, Y)	HT327052A0
⚠ Q705		4822 130 60117	Transistor 2SC3419	HT334191Y0
⚠ Q706		4822 130 60117	Transistor 2SC3419	HT334191Y0
⚠ Q707		4822 130 62335	Transistor 2SD2033 (E)	HT420331E0
⚠ Q708		4822 130 62335	Transistor 2SD2033 (E)	HT420331E0
⚠ Q709		4822 130 62334	Transistor 2SB1353 (E)	HT213531E0
⚠ Q710		4822 130 62334	Transistor 2SB1353 (E)	HT213531E0
⚠ Q711		4822 130 43306	Transistor 2SC3182 (R, O)	HT331822A0
⚠ Q712		4822 130 43306	Transistor 2SC3182 (R, O)	HT331822A0
⚠ Q713		4822 130 43019	Transistor 2SA1265 (R, O)	HT112652A0
⚠ Q714		4822 130 43019	Transistor 2SA1265 (R, O)	HT112652A0
⚠ Q715		4822 209 83732	IC AN7062N	HC10066020
⚠ Q751		4822 209 32696	IC STK401-110	HC10312030
⚠ Q801		4822 209 61848	IC NJM7815FA	HC38915090
⚠ Q802		4822 209 31631	IC NJM7805FA	HC38905090
⚠ Q803		4822 209 83828	IC NJM7915FA	HC3991509F
			PV04-MISCELLANEOUS	
LN01		4822 280 70354	Relay 24MBU-510	LY20240310
LN02		4822 280 70354	Relay 24MBU-510	LY20240310
LN03		4822 280 20501	Relay MR62-24SR	LY20240410
LN51		4822 280 70354	Relay 24MBU-510	LY20240310
L701		4822 157 70022	Air Coil	ML08010030
L702		4822 157 70022	Air Coil	ML08010030
L751		4822 157 70022	Air Coil	ML08010030
L752		4822 157 70022	Air Coil	ML08010030
JV01		4822 265 30457	Terminal, 6P RCA	YT02060240
JV02		4822 265 30457	Terminal, 6P RCA	YT02060240
JV03		4822 265 30457	Terminal, 6P RCA	YT02060240
JV04		4822 265 30397	Terminal, 4P RCA	YT02040610
JV05		4822 266 30274	Terminal, 2P RCA	YT02020550
J401		4822 267 30741	Terminal, 2P RCA	YT02020490
J701		4822 290 61179	Terminal, SPK	YT01080120
			PW04-HEADPHONE CIRCUIT BOARD	
PW04			HEADPHON PCB	WA183J3040
CW01		4822 122 40617	Ceramic 01µF 50V	DD38104010
JW02	/ 02B/ K/ U	4822 267 31691	Jack, Headphone (BLK)	YJ01003870
	/ 02G/ K	4822 267 31692	Jack, Headphone (GLD)	YJ01003880
			P104-FM FRONT END / FM / AM IF CIRCUIT BOARD	
P104			FM FRONT END / FM / AM IF PCB	WA183J2010
			P104-CAPACITORS	
CA01		4822 125 60185	Trimming 20pF	CT12000200
CA02		4822 122 40306	Ceramic 0.047µF +80% -20% 50V	DK18473310
CA03		4822 122 31823	Ceramic 15pF ±5% 50V	DD15150300
CA04		5322 121 54128	Film 390pF ±5% 50V	DF55391090
CA05		4822 122 31205	Ceramic 47pF ±5% 50V	DD15470300
CA06		4822 122 30043	Ceramic 0.01µF +80% -20% 50V	DK18103310
CA07	/ 02B/ 02G	4822 122 30043	Ceramic 0.01µF +80% -20% 50V	DK18103310
CA08	/ 02B/ 02G	4822 125 60185	Trimming 20pF	CT12000200
CA09	/ 02B/ 02G	4822 122 31823	Ceramic 15pF ±5% 50V	DD15150300
CA11	/ 02B/ 02G	4822 122 31349	Ceramic 68pF ±5% 50V	DD15680300
CA12	/ 02B/ 02G	4822 122 10367	Ceramic 150pF ±5% 50V	DD15151300
CA13	/ 02B/ 02G	4822 122 30043	Ceramic 0.01µF +80% -20% 50V	DK18103310
CA14	/ 02B/ 02G	4822 122 30043	Ceramic 0.01µF +80% -20% 50V	DK18103310
CA15		4822 122 30043	Ceramic 0.01µF +80% -20% 50V	DK18103310
CA18		4822 124 21894	Elect 10µF 16V	EJ10601610
CF01		4822 124 23053	Elect 1µF 50V	EJ10505010
CF02		4822 124 23053	Elect 1µF 50V	EJ10505010
CL04		4822 124 21894	Elect 10µF 16V	EJ10601610
CL05		4822 124 21894	Elect 10µF 16V	EJ10601610
CL06		4822 124 21894	Elect 10µF 16V	EJ10601610
CL13		4822 122 40617	Ceramic 0.1µF +80% -20% 50V	DD38104010

POS.NO	VERSION	PART NO. (FOR EUROPE)	DESCRIPTION	PART NO. (FOR U/K)
CM01		4822 124 23053	Elect 1μF 50V	EJ10505010
CM02		4822 124 23053	Elect 1μF 50V	EJ10505010
CM04		4822 124 23053	Elect 1μF 50V	EJ10505010
CM06		4822 124 23053	Elect 1μF 50V	EJ10505010
CM08		4822 124 21895	Elect 0.22μF 50V	EJ22405010
CM10		4822 124 23053	Elect 1μF 50V	EJ10505010
CM15		4822 122 31205	Ceramic 47pF ±5% 50V	DD15470300
CM18		4822 124 23053	Elect 1μF 50V	EJ10505010
CM22		4822 124 21895	Elect 0.22μF 50V	EJ22405010
CM24		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
CM27		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
CM28		4822 124 23053	Elect 1μF 50V	EJ10505010
CW51	/02B/ 02G	4822 122 30103	Ceramic 0.022μF +80% -20% 50V	DK18223310
CW52	/02B/ 02G	4822 122 30103	Ceramic 0.022μF +80% -20% 50V	DK18223310
CW53	/02B/ 02G	4822 122 30103	Ceramic 0.022μF +80% -20% 50V	DK18223310
C201		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
C202		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
C203		4822 122 40306	Ceramic 0.047μF +80% -20% 50V	DK18473310
C204		4822 124 21894	Elect 10μF 16V	EJ10601610
C205		4822 122 40306	Ceramic 0.047μF +80% -20% 50V	DK18473310
C206		4822 124 21894	Elect 10μF 16V	EJ10601610
C208		4822 122 40306	Ceramic 0.047μF +80% -20% 50V	DK18473310
C209		4822 124 23053	Elect 1μF 50V	EJ10505010
C211		4822 124 23053	Elect 1μF 50V	EJ10505010
C213		4822 124 21899	Elect 4.7μF 25V	EJ47502510
C214		4822 124 21894	Elect 10μF 16V	EJ10601610
C215		4822 122 40306	Ceramic 0.047μF +80% -20% 50V	DK18473310
C217		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
C218		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
C219	U/K		Ceramic 0.01μF +80% -20% 50V	DK18103310
C222		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
C223		4822 122 31205	Ceramic 47pF ±5% 50V	DD15470300
C311		4822 124 21894	Elect 10μF 16V	EJ10601610
C312		4822 124 21894	Elect 10μF 16V	EJ10601610
C501		4822 122 31205	Ceramic 47pF ±5% 50V	DD15470300
C502		4822 122 31205	Ceramic 47pF ±5% 50V	DD15470300
C504		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
C505		4822 124 23053	Elect 1μF 50V	EJ10505010
C507		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
C511		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
C512		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
C601		4822 124 21894	Elect 10μF 16V	EJ10601610
C602		4822 124 21894	Elect 10μF 16V	EJ10601610
C612		4822 124 21894	Elect 10μF 16V	EJ10601610
C617		4822 124 21894	Elect 10μF 16V	EJ10601610
C618		4822 124 23055	Elect 22μF 16V	EJ22601610
C619		4822 124 21894	Elect 10μF 16V	EJ10601610
C621		4822 124 21894	Elect 10μF 16V	EJ10601610
C622		4822 124 21894	Elect 10μF 16V	EJ10601610
C624		4822 124 21894	Elect 10μF 16V	EJ10601610
C625		4822 124 21894	Elect 10μF 16V	EJ10601610
C636		4822 124 21899	Elect 4.7μF 25V	EJ47502510
C637		4822 124 21899	Elect 4.7μF 25V	EJ47502510
C640		4822 124 21895	Elect 0.22μF 50V	EJ22405010
C641		4822 124 21894	Elect 10μF 16V	EJ10601610
C642		4822 124 21894	Elect 10μF 16V	EJ10601610
C653		4822 124 21895	Elect 0.22μF 50V	EJ22405010
C656		4822 122 30043	Ceramic 0.22μF +80% -20% 50V	DK18103310
C657		4822 124 21895	Elect 0.22μF 50V	EJ22405010
C665		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
			P104-CAPACITORS (COMMON)	
$\underline{\text{C***}}$			Ceramic capacitors, 50V : C210	
$\underline{\text{C}}*\underline{\text{**}}$			High dielectric constant ceramic capacitors, ±5% 50V : CA17, CF05, CF06, CM03, CM05, CM07, CM09, CM11, CM20, C509, C510, C608, C610, C629, C645, C652, C661, C662	
$\overline{\text{C***}}$			Electrolytic capacitor, ±20% : CF03, CF04, CL01, CL02, CL03, CL07~CL12, C207, C216, C220, C503, C508, C623, C628, C647, C655, C660, C663, C664,	

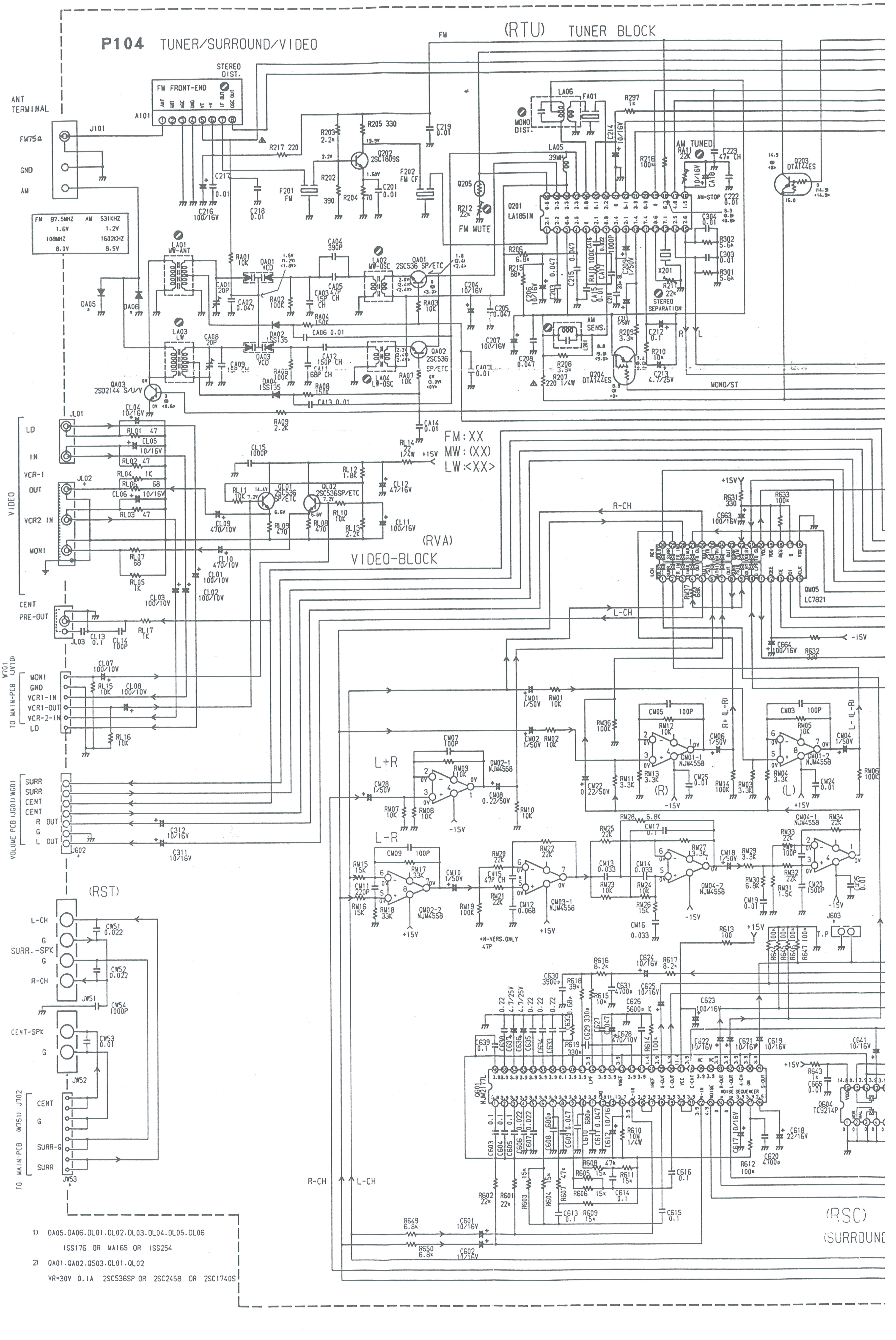
POS.NO	VERSION	PART NO. (FOR EUROPE)	DESCRIPTION	PART NO. (FOR U / K)
C***			Plastic film capacitor, ±5% 50V : CA15, CA16, CM12, CM13, CM14, CM16, CM17, CM19, C212, C303, C304, (C309, C310 [K]), C506, C603~C607, C609, C611, C613~C616, C620, C626, C627, C630~C635, C638, C639, C643, C644, C646, C648~C651, C654	
			P104-RESISTORS	
RA11	U / K / 02B/ 02G	 4822 100 11352	10K Ω, Trimming 22K Ω, Trimming	RA01030780 RA02230780
RL14		4822 050 22209	22 Ω ±5% 1/4W	GG05220140
▲R207		4822 116 83929	220 Ω ±5% 1/4W	GG05221140
R211		4822 100 11373	4.7K Ω, Trimming	RA04720780
R212		4822 100 11352	22K Ω, Trimming	RA02230780
R217		4822 052 10221	220 Ω ±5% 1/6W	GG05221160
R512		4822 052 10221	220 Ω ±5% 1/6W	GG05221160
R610		4822 111 30999	10M Ω ±5% 1/4W	GD05106140
▲R613		4822 115 90167	100 Ω ±2% 1/4W, Fusible	NF02101140
R631		4822 111 31001	330 Ω ±5% 1/6W	GG05331160
R632		4822 111 31001	330 Ω ±5% 1/6W	GG05331160
R634		4822 052 10101	100 Ω ±5% 1/6W	GG05101160
R639		4822 052 10479	47 Ω ±5% 1/4W	GG05470140
			P104-RESISTORS (COMMON)	
R***			Carbon film fixed resistor, ±5% 1/4W : R610	
R***			Carbon film fixed resistor, ±5% 1/6W : RA01, RA02, (RA03, RA04, RA06~RA09 [/ 02B/ 02G]), RA10, RF03~RF06, RL01~RL13, RM01~RM34, RM36, RM37, R201~R206, R208, R209, R210, R215~R216, R297, R301, R302, R501~R504, R506, R507, (R508 [U, K]), R509, R510, R511, R513, R514, R601~R609, R611, R612, R614~R630, R633, R635, R636, R637, R643~R647, R649, R650	
			P104-SEMICONDUCTORS	
DA01		4822 125 50416	Varicap SVC342-K	HD40009030
DA02	/ 02B/ 02G	4822 130 33697	Diode 1SS135	HD20017210
DA03	/ 02B/ 02G	4822 125 50416	Varicap SVC342-K	HD40009030
DA04	/ 02B/ 02G	4822 130 33697	Diode 1SS135	HD20017210
DA05		4822 130 33305	Diode 1SS176, etc.	HD20002000
DA06		4822 130 33305	Diode 1SS176, etc.	HD20002000
D501		4822 130 80317	Zener RD5.1JB2 / MTZJ5.1B	HD30511000
QA01	/ 02B/ 02G	4822 130 42298	Transistor 2SC536SP, etc.	HT30001000
QA02	/ 02B/ 02G	4822 130 42298	Transistor 2SC536SP, etc.	HT30001000
QA03	/ 02B/ 02G	4822 130 61892	Transistor 2SD2144S (U, V)	HT421442A0
QF01		4822 209 83631	IC NJM4558DD	HC10008090
QL01		4822 130 42298	Transistor 2SC536SP, etc.	HT30001000
QL02		4822 130 42298	Transistor 2SC536SP, etc.	HT30001000
QM01 ~ QM04		4822 209 83631	IC NJM4558DD	HC10008090
QM05		4822 209 72748	IC LC7821	HC10228030
Q201		4822 209 31001	IC LA1851N	HC10288030
Q202		4822 130 62294	Transistor 2SC1809S (P)	HT318091P0
Q203		4822 130 42682	Transistor, Digital DTA144ES/UN4113	BA10002000
Q204		4822 130 42682	Transistor, Digital DTA144ES/UN4113	BA10002000
Q205		4822 126 90006	Varistor PTH59F04BH222TS	HP00016230
Q501		4822 209 30178	IC LC7218	HC10221030
Q502		4822 130 42121	F.E.T. 2SK30A (Y)	HF200300B0
Q503		4822 130 42298	Transistor 2SC536SP, etc.	HT30001000
Q601		4822 209 32693	IC NJM2177L	HC10126090
Q602		4822 209 32694	IC MJU7901D	HC10127090
Q603		4822 209 32695	IC NJU3711D	HC10128090
Q604		4822 209 73275	IC TC9214P	HC10209050

POS.NO	VERSION	PART NO. (FOR EUROPE)	DESCRIPTION	PART NO. (FOR U/K)
			P104-MISCELLANEOUS	
A101	/02B/ 02G	4822 210 10567	V.H.F. Tuner FE417-G02	AV01202230
	U/K		V.H.F. Tuner FE340-A01	AV01202240
FA01		4822 242 81262	Ceramic Filter SFP450F	FF10045390
F201	U		Ceramic Filter SFF10.7MA8-A	FF11070610
	/02B/02G/K	4822 242 71135	Ceramic Filter SFE10.7MS3-A	FF11070620
F202		4822 242 71135	Ceramic Filter SFE10.7MS3-A	FF11070620
JL01		4822 267 31208	Terminal, 2P RCA	YT02020880
JL02		4822 265 30627	Terminal, 3P RCA	YT02030060
JL03		4822 290 81631	Terminal, 1P RCA	YT02010380
JL04		4822 265 10063	Jack, 6P VIDEO IN / OUT	YJ06002450
JW51	/02B/ 02G	4822 290 60752	Terminal, 4P SPK Surround	YT03040330
	U/K		Terminal, 4P SPK Surround	YT03040370
JW52		4822 290 81567	Terminal, 2P SPK Center	YT03020150
J101	/02B/02G/K	4822 290 81632	Terminal, Antenna	YT03030020
	U		Terminal, Antenna	YT01030080
LA01		4822 157 63084	ANT Coil, MW	LA10295170
LA02		4822 157 70779	OSC Coil, MW	LO70013010
LA03	/02B/ 02G	4822 157 52714	ANT Coil, LW	LA10295160
LA04	/02B/ 02G	4822 157 70781	OSC Coil, LW	LO70013020
LA05		4822 157 53589	Choke Coil	LC23960710
LA06		4822 148 81095	I.F.T. Coil, AM	LI70033510
L201		4822 157 63904	I.F.T. Coil, FM DET	LI70376010
L202	/02B/02G/K	4822 156 10794	M.P.X. Coil, Antibirde Filter	LS10295030
L601 ≀ L604		4822 157 70813	Choke Coil 47μH	LC14733800
S301	K		Slide Switch, Scan Step	SS02021470
X201		4822 242 81248	Ceramic Resonator CSB456F15	FQ04563020
X501		4822 242 72333	Crystal 7.2MHz	JX07001260
X601		4822 242 81525	Ceramic Resonator CST2.00MG040	FQ02004030
			P304-TU POST AMP / SURR. BUFF CIRCUIT BOARD	
P304			TU POST AMP / SURR. BUFF PCB	WA183J2020
			P304-CAPACITORS	SS02021470
CG01				FQ04563020
≀		4822 124 23053	Elect 1μF 50V	JX07001260
CG04				FQ02004303
CG05 ≀ CG10		4822 124 21899	Elect 4.7μF 25V	EJ47502510
CG11		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
CG12		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
CG15		4822 124 21899	Elect 4.7μF 25V	EJ47502510
CG16		4822 124 21899	Elect 4.7μF 25V	EJ47502510
CG17		4822 124 21894	Elect 10μF 16V	EJ10601610
CG18		4822 124 21894	Elect 10μF 16V	EJ10601610
CG19		4822 124 21894	Elect 10μF 16V	EJ10601610
CG51		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
CG52		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
C301		4822 124 21899	Elect 4.7μF 25V	EJ47502510
C302		4822 124 21899	Elect 4.7μF 25V	EJ47502510
C305		4822 124 21899	Elect 4.7μF 25V	EJ47502510
C306		4822 124 21899	Elect 4.7μF 25V	EJ47502510
C307		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
C308		4822 122 30043	Ceramic 0.01μF +80% -20% 50V	DK18103310
			P304-RESISTORS	
RG15		4822 052 10221	220 Ω ±5% 1/6W	GG05221160
RG16		4822 052 10221	220 Ω ±5% 1/6W	GG05221160
R313		4822 052 10221	220 Ω ±5% 1/6W	GG05221160
R314		4822 052 10221	220 Ω ±5% 1/6W	GG05221160

POS.NO	VERSION	PART NO. (FOR EUROPE)	DESCRIPTION	PART NO. (FOR U/K)
			P304-RESISTORS (COMMON)	
R***			Carbon film fixed resistor, ±5% 1/6W : RF07, RF08, RG01~RG14, RG17~RG21, RG25, R303~R312	
			P304-SEMICONDUCTORS	
D201		4822 130 33305	Diode 1SS176, etc.	HD20002000
QA04	/ 02B/ 02G	4822 130 42682	Transistor, Digital DTA144ES	BA10002000
QA05	/ 02B/ 02G	4822 130 42682	Transistor, Digital DTA144ES	BA10002000
QG01		4822 209 83631	IC NJM4558DD	HC10008090
QG02		4822 209 31575	IC TC7213P	HC10304050
QG03		4822 209 83631	IC NJM4558DD	HC10008090
QG04		4822 209 83631	IC NJM4558DD	HC10008090
Q301		4822 209 83631	IC NJM4558DD	HC10008090
			P304-MISCELLANEOUS	
L301		4822 157 70021	M.P.X. Coil 19.38KHz	LC10293010
L302		4822 157 70021	M.P.X. Coil 19.38KHz	LC10293010

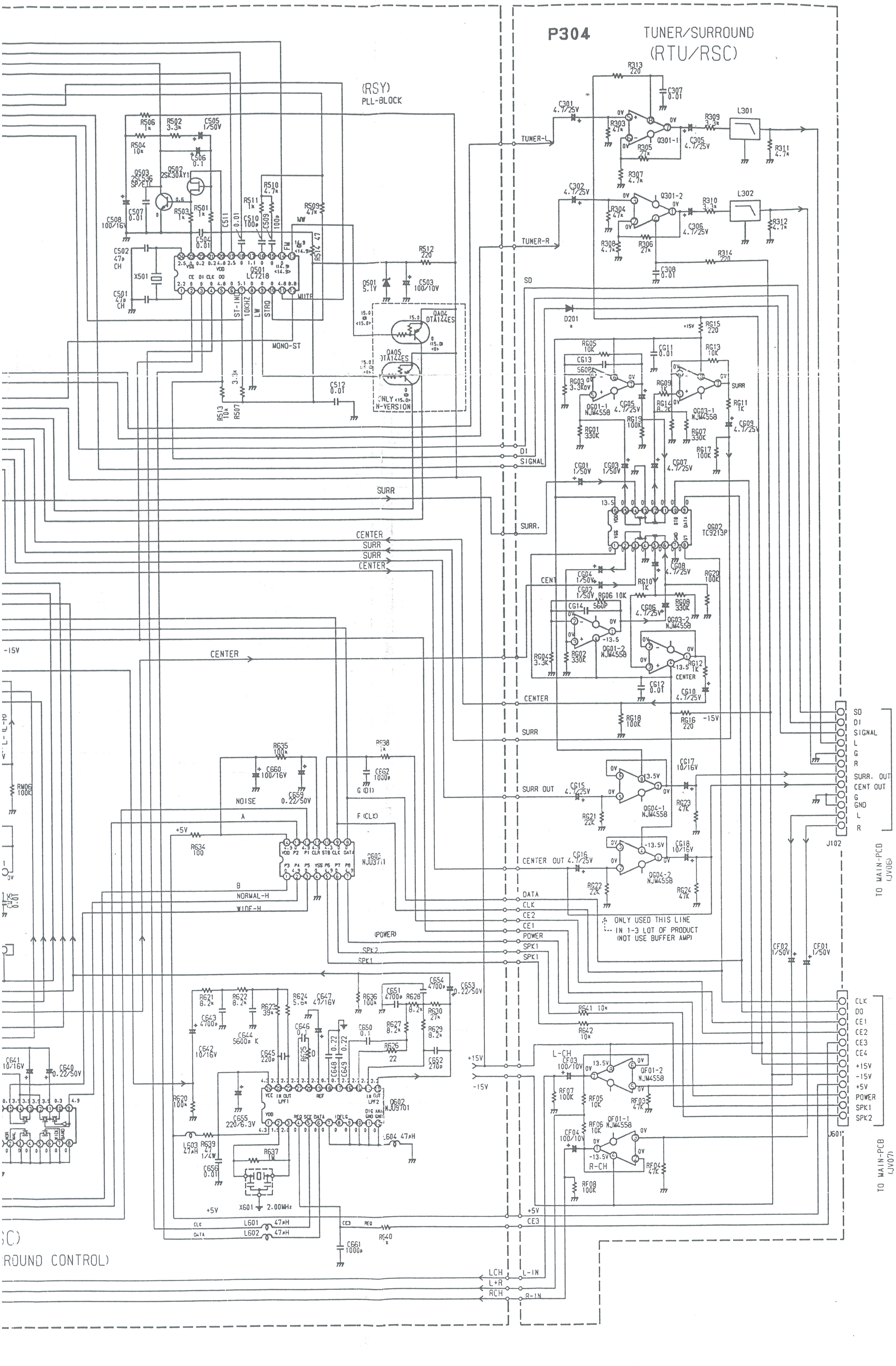
NOTE ON SAFETY:
Symbol ▲ Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol ▲. Any other component substitution (other than original type),may increase risk of fire or electrical shock hazard.

SR-73 SCHEMATIC DIAGRAM

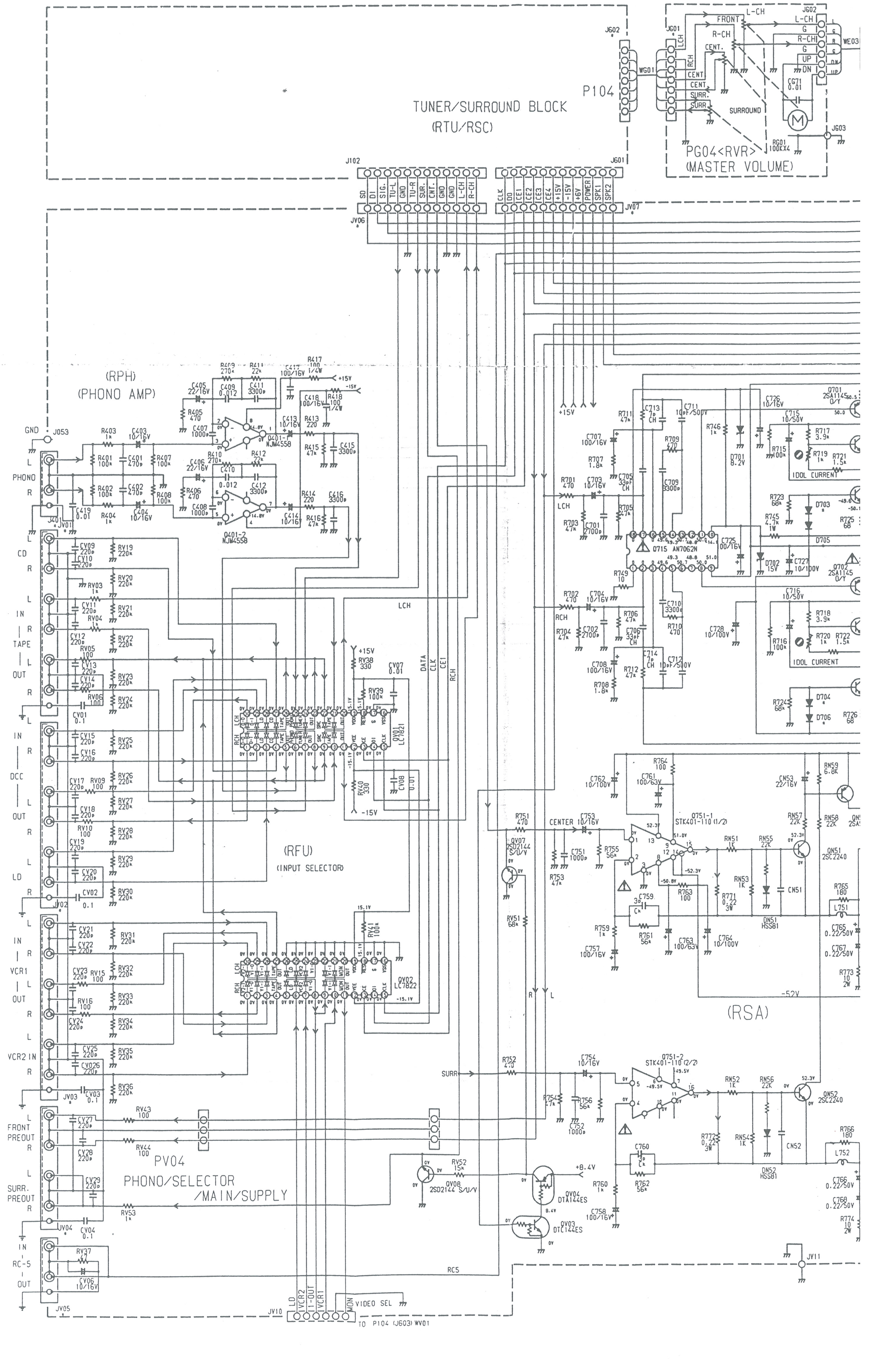

P104 TUNER/SURROUND/VIDEO
(RTU) TUNER BLOCK
FM FRONT-END
STEREO DIST.
ANT TERMINAL
FM75Ω
GND
AM
J101
A101
FM 87.5MHZ 1.6V
108MHZ 8.0V
AM 531KHZ 1.2V
1602KHZ 8.5V
MONO DIST.
AM TUNED
AM-STOP
FM MUTE
STEREO SEPARATION
AM SENS.
MONO/ST
Q201 LA1851N
Q202 2SC1809S
Q203 DTA144ES
Q204 DTA144ES
QA01 2SC536 SP/ETC
QA02 2SC536 SP/ETC
QA03 2SD2144 S/U/V
LA01 MW-ANT
LA02 MW-OSC
LA03 LW
LA04 LW-OSC
FM:XX
MW:(XX)
LW:<XX>
(RVA) VIDEO-BLOCK
QL01 2SC536 SP/ETC
QL02 2SC536SP/ETC
VIDEO
LD
IN
VCR-1 OUT
VCR2 IN
MONI
CENT PRE-OUT
TO MAIN-PCB (JV10) W701
MONI
GND
VCR1-IN
VCR1-OUT
VCR-2-IN
LD
VOLUME PCB (JG01) WG01
SURR
SURR
CENT
CENT
R OUT
G
L OUT
J602
R-CH
L-CH
QM05 LC7821
L+R
L-R
QM01-1 NJM4558
QM01-2 NJM4558
QM02-1 NJM4558
QM02-2 NJM4558
QM03-1 NJM4558
QM04-1 NJM4558
QM04-2 NJM4558
(R)
(L)
R+ (L-R)
L+ (L-R)
*N-VERS.ONLY 47P
J603
T.P
(RST)
L-CH
G
SURR.-SPK
G
R-CH
JW51
CENT-SPK
G
JW52
TO MAIN-PCB (W751) J702
CENT
G
SURR-G
SURR
JW53
Q601 NJM2177L
NOISE SEQUENCER
Q604 TC9214P
(RSC) SURROUND

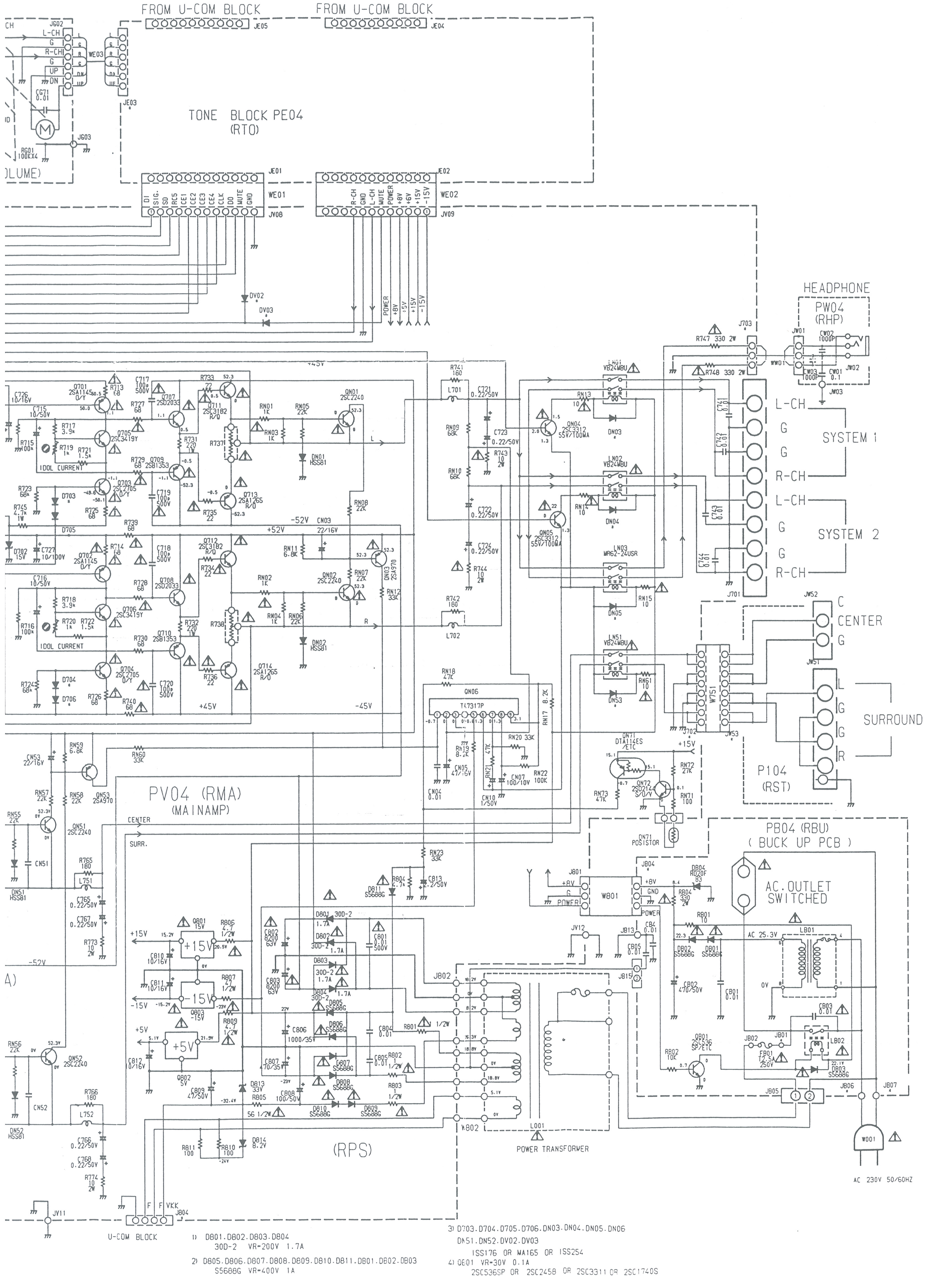
1) DA05.DA06.DL01.DL02.DL03.DL04.DL05.DL06
1SS176 OR MA165 OR 1SS254

2) QA01.QA02.Q503.QL01.QL02
VR=30V 0.1A 2SC536SP OR 2SC2458 OR 2SC1740S


P304
TUNER/SURROUND
(RTU/RSC)
(RSY)
PLL-BLOCK
Q501 LC7218
Q502 2SK30AY1
Q503 2SC536 SP/E/L
X501
R506 1k
R502 3.3k
C505 1/50V
R504 10k
C506 0.1
R510 4.7k
R511 1k
R509 47k
R503 1k
R501 1k
C511 0.01
C510 100p
C509 100p
C507 0.01
C508 100/16V
C502 47p CH
C501 47p CH
C504 0.01
R514 47
R512 220
D501 5.1V
C503 100/10V
QA04 DTA144ES
QA05 DTA144ES
ONLY N-VERSION
C512 0.01
R513 10k
R507 3.3k
ST-IN
10KHZ
LW
STRO
MUTE
MW
FM
MONO-ST
TUNER-L
TUNER-R
C301 4.7/25V
C302 4.7/25V
R313 220
C307 0.01
R303 47k
R304 47k
R305 27k
R306 27k
R307 4.7k
R308 4.7k
Q301-1
Q301-2
C305 4.7/25V
C306 4.7/25V
R309 3.3k
R310 3.3k
L301
L302
R311 4.7k
R312 4.7k
R314 220
C308 0.01
SD
D201
DI
SIGNAL
SURR
SURR.
CENTER
RG15 220
RG05 10K
CG13 560P
RG03 3.3K
QG01-1 NJM4558
CG05 4.7/25V
CG11 0.01
RG13 10K
RG09
RG14 8.2K
QG03-1 NJM4558
RG11 1K
CG09 4.7/25V
RG01 330K
RG19 100K
RG07 330K
RG17 100K
CG01 1/50V
CG03 1/50V
CG07 4.7/25V
QG02 TC9213P
CG04 1/50V
CG02 1/50V
RG06 10K
CG14 560P
CG06 4.7/25V
RG08 330K
QG03-2 NJM4558
RG10 1K
CG08 4.7/25V
RG20 100K
QG01-2 NJM4558
RG04 3.3K
RG02 330K
RG12 1K
CG12 0.01
CG10 4.7/25V
RG18 100K
RG16 220
-15V
SURR OUT
CG15 4.7/25V
RG21 22K
QG04-1 NJM4558
CG17 10/16V
RG23 47K
CENTER OUT
CG16 4.7/25V
RG22 22K
QG04-2 NJM4558
CG18 10/16V
RG24 47K
DATA
CLK
CE2
CE1
POWER
SPK2
SPK1
ONLY USED THIS LINE IN 1-3 LOT OF PRODUCT (NOT USE BUFFER AMP)
SD
DI
SIGNAL
L
G
R
SURR. OUT
CENT OUT
G
GND
L
R
J102
TO MAIN-PCB (JV06)
CF02 1/50V
CF01 1/50V
R635 100k
C660 100/16V
C659 0.22/50V
NOISE
R638 1k
C662 1000p
G (DI)
F (CLK)
A
+5V
R634 100
Q601 NJU3711
B
NORMAL-H
WIDE-H
R621 8.2k
R622 8.2k
R623 39k
R624 5.6k
C647 47/16V
R636 100k
C651 4700p
R628 8.2k
C654 4700p
C653 0.22/50V
C643 4700p
C644 5600p K
C646 0.1
C650 0.1
R627 8.2k
R630 27k
R629 8.2k
R626 22
C642 10/16V
C645 220p
R625
C648 0.22
C649 0.22
C652 270p
R620 100k
Q602 NJU9701
C655 220/6.3V
L603 47μH
R639 27 1/4W
R637 1M
C656 0.01
X601 2.00MHz
L604 47μH
L601 47μH
L602 47μH
C661 1000p
R640
CE3
REQ
R641 10k
R642 10k
CLK
DO
CE1
CE2
CE3
CE4
+15V
-15V
+5V
POWER
SPK1
SPK2
J601
TO MAIN-PCB (JV07)
L-CH
CF03 100/10V
QF01-2 NJM4558
RF07 100K
RF05 10K
RF03 47K
RF06 10K
QF01-1 NJM4558
CF04 100/10V
R-CH
RF04 47K
RF08 100K
LCH
L+R
RCH
L-IN
R-IN
C641 10/16V
C640 0.22/50V
RM06 100K
(SC)
(ROUND CONTROL)

SR-73 SCHEMATIC DIAGRAM


TUNER/SURROUND BLOCK
(RTU/RSC)
P104
J602
J102
J601
SD
DI
SIG.
TU-L
GND
TU-R
SUR.
CNT.
GND
GND
L-CH
R-CH
CLK
DO
CE1
CE2
CE3
CE4
+15V
-15V
-16V
POWER
SPK1
SPK2
JV06
JV07
JG01
WG01
FRONT
L-CH
R-CH
CENT.
SURR.
SURROUND
J602
WE03
CG71
0.01
PG04<RVR>
(MASTER VOLUME)
RG01
100KX4
J603
(RPH)
(PHONO AMP)
GND
J053
PHONO
Q401-1
NJM4558
Q401-2
NJM4558
CD
IN
TAPE
OUT
DCC
LD
VCR1
VCR2 IN
FRONT
PREOUT
SURR.
PREOUT
RC-5
(RFU)
(INPUT SELECTOR)
QV01
LC7821
QV02
LC7822
DATA
CLK
CE1
RCH
LCH
+15V
-15V
PV04
PHONO/SELECTOR
/MAIN/SUPPLY
QV07
2SD2144
S/U/V
QV08
2SD2144 S/U/V
QV04
DTA144ES
QV03
DTC144ES
+8.4V
RC5
JV10
LD
VCR2
1-OUT
VCR1
MON
VIDEO SEL
TO P104 (J603) WV01
JV11
Q715 AN7062N
Q701
2SA1145
Q702
2SA1145
IDOL CURRENT
CENTER
SURR
Q751-1
STK401-110 (1/2)
Q751-2
STK401-110 (2/2)
QN51
2SC2240
QN52
2SC2240
DN51
HSS81
DN52
HSS81
L751
L752
-52V
(RSA)


FROM U-COM BLOCK
FROM U-COM BLOCK
TONE BLOCK PE04
(RTO)
HEADPHONE
PW04
(RHP)
L-CH
G
G
R-CH
SYSTEM 1
L-CH
G
G
R-CH
SYSTEM 2
C
CENTER
G
L
G
G
R
SURROUND
P104
(RST)
PV04 (RMA)
(MAINAMP)
PB04 (RBU)
(BUCK UP PCB)
AC.OUTLET
SWITCHED
(RPS)
POWER TRANSFORMER
AC 230V 50/60HZ
IDOL CURRENT
IDOL CURRENT
U-COM BLOCK

1) D801.D802.D803.D804
30D-2 VR=200V 1.7A

2) D805.D806.D807.D808.D809.D810.D811.DB01.DB02.DB03
S5688G VR=400V 1A

3) D703.D704.D705.D706.DN03.DN04.DN05.DN06
DN51.DN52.DV02.DV03
ISS176 OR MA165 OR ISS254

4) QE01 VR=30V 0.1A
2SC536SP OR 2SC2458 OR 2SC3311 OR 2SC1740S

PCS